APRIL 2, 1956

Who Benefits from Phantom Rates? . . . p. 39

RAILWAY AGE

WORKBOOK OF THE RAILWAYS

THE INDUSTRY'S ONLY WEEKLY NEWSMAGAZINE

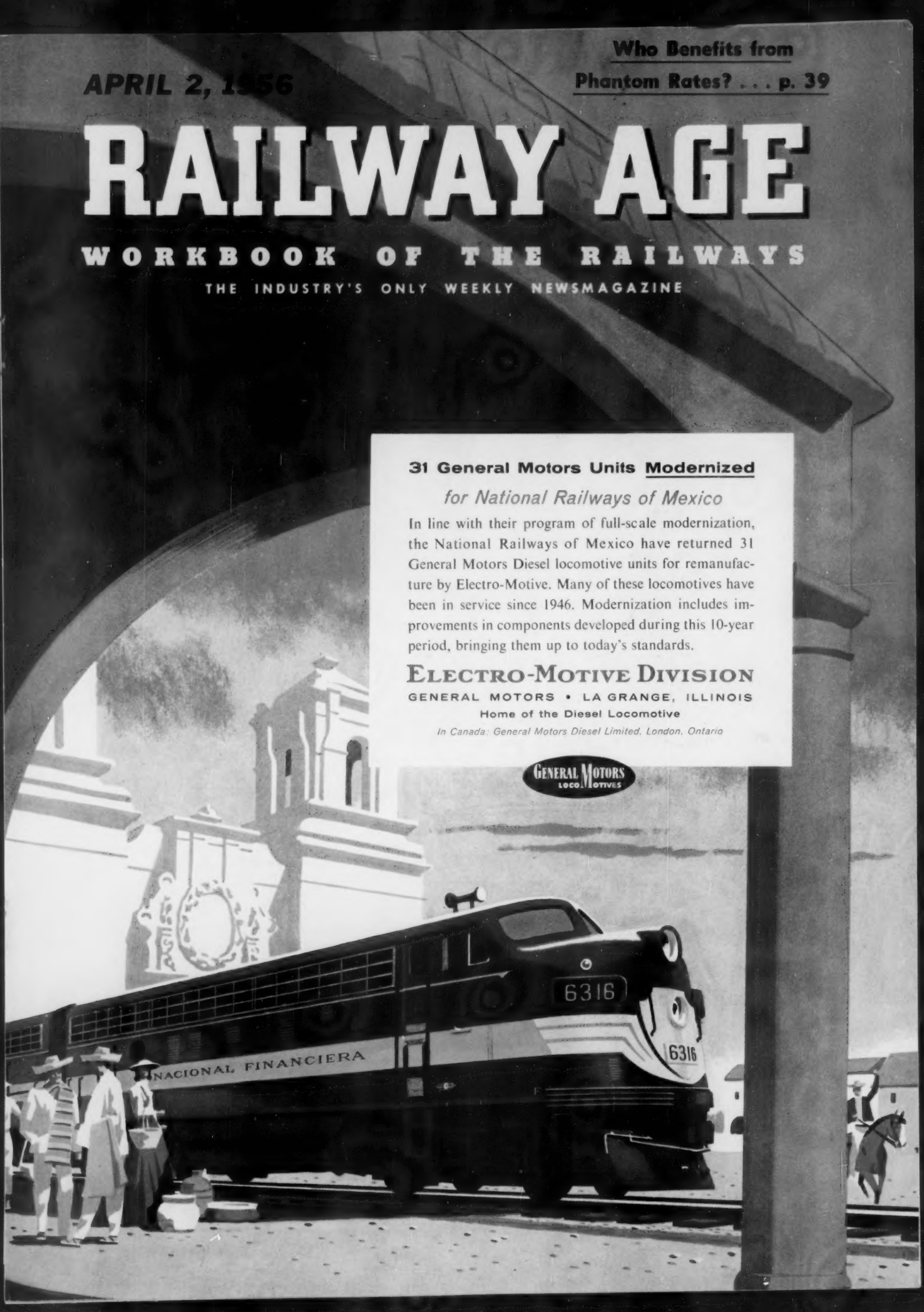
31 General Motors Units Modernized

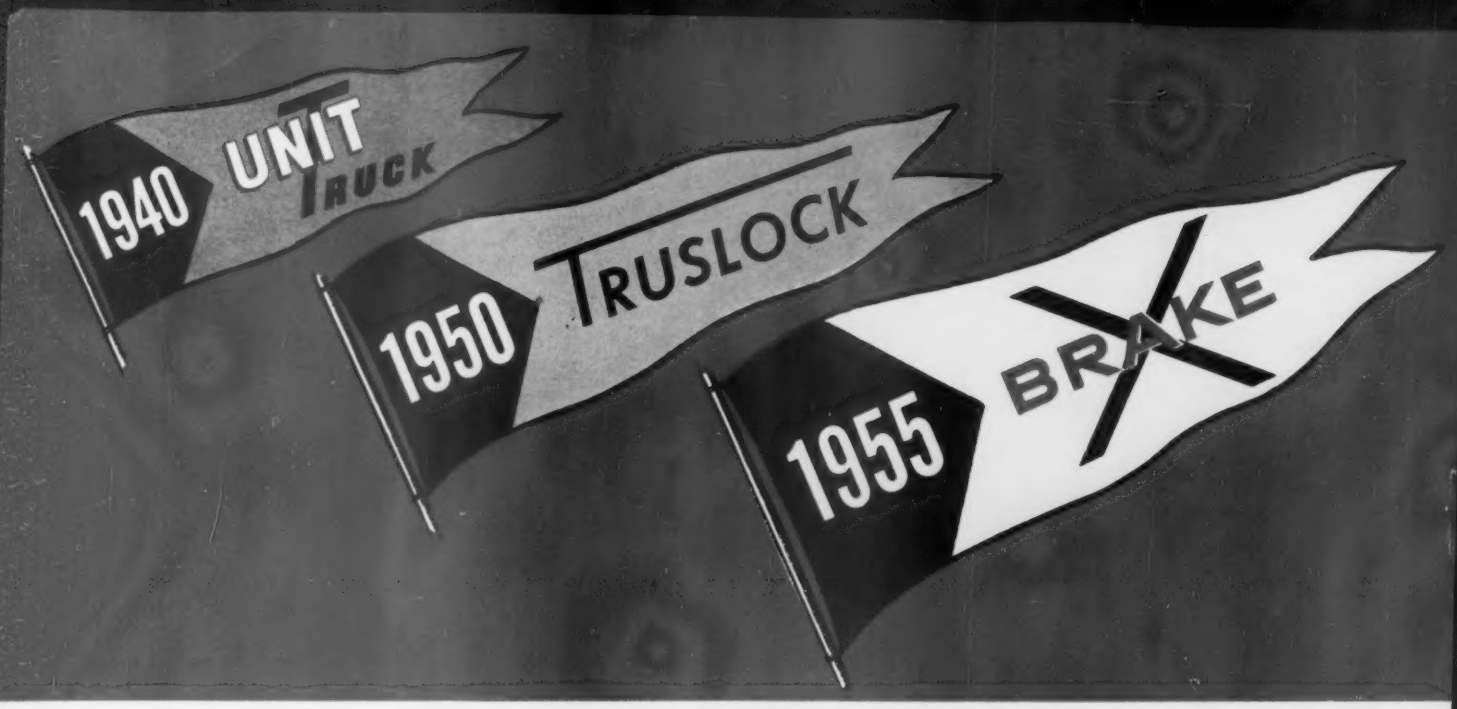
for National Railways of Mexico

In line with their program of full-scale modernization, the National Railways of Mexico have returned 31 General Motors Diesel locomotive units for remanufacture by Electro-Motive. Many of these locomotives have been in service since 1946. Modernization includes improvements in components developed during this 10-year period, bringing them up to today's standards.

ELECTRO-MOTIVE DIVISION
GENERAL MOTORS • LA GRANGE, ILLINOIS
Home of the Diesel Locomotive
In Canada: General Motors Diesel Limited, London, Ontario

GENERAL MOTORS LOCOMOTIVES





The 3 outstanding advances in the field of freight car braking are the products of a policy from which we have never deviated in more than half a century of building better brake rigging for U. S. freight cars....a steadfast determination to stick to the one thing we know best of all.

BUFFALO BRAKE BEAM CO. • UNIT TRUCK CORPORATION

How to keep a crossing in its place

See those trim little plates paired off on the ties, with their built-in "hooks" hugging tight to the rail? Those are Bethlehem Hook Twin Tie Plates, and they are stubbornly bent on keeping this crossing right where it belongs.

And they can do that job superbly, just as they excel in holding down frogs, closure rails, tee-guard rails, graduated riser switches, or tongue switches and mates. For one thing, those sturdy forged hooks are larger and stronger than ordinary spike heads. For another, they distribute the load over a greater tie area, reducing the pull on any one spike. Thus the track is better anchored, vertical and lateral thrusts are checked, and ties are given a considerably longer lease on life.

Your stores department will like the way Hook Twin Tie Plates hold down inventories, too. Normally three or four lengths of these plates are all you'll ever need to carry in stock, since any two plates will fit most any position on any frog or crossing on your lines.

Hook Twin Tie Plates can normally be furnished from stock in 23-, 27-, 31- and 35 in. lengths, 4-in. width, and in thicknesses of $\frac{3}{4}$, $\frac{7}{8}$ and 1 in. Hooks may be specified "low" for contacting rail bases, "high" for cast-manganese sections. Reverse-hook plates, used at heel-ends, are available in all lengths. For further details just call the nearest Bethlehem sales office or write direct to us at Bethlehem, Pa.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

BETHLEHEM STEEL

NEW UNION "AFO" Electronic Circuit

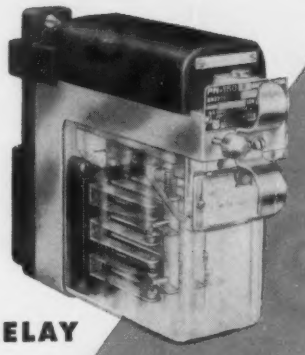
Now, for the first time . . . short track circuits, like the example shown below, can be provided without disturbing wayside signaling track circuits.

The new UNION Audio Frequency Overlay (AFO) circuit can be superimposed on any existing track circuit . . . A.C., D.C., or coded . . . without mutual interference and without installing additional insulated joints.

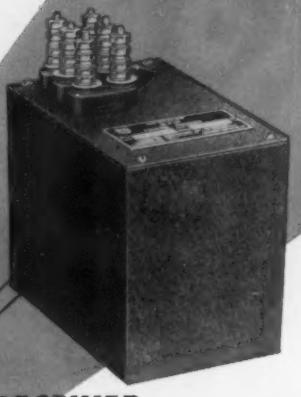
This new UNION electronic circuit can also be superimposed on signal line circuits . . . and with no mutual interference . . . to control additional functions, such as block indications, without the need for additional line wires.

With the UNION "AFO" circuit the output of an audio frequency transmitter is applied directly to the rails or the line wires. A receiver, tuned to the selected frequency, receives the transmitted signal and operates a relay. This new equipment can provide adjoining or even overlapping circuits without interference . . . leaving the existing basic track or line circuits intact.

The UNION "AFO" electronic equipment, using hermetically sealed junction transistors throughout, is designed to operate from the standard 10 to 12-volt battery supply. Write for complete information.

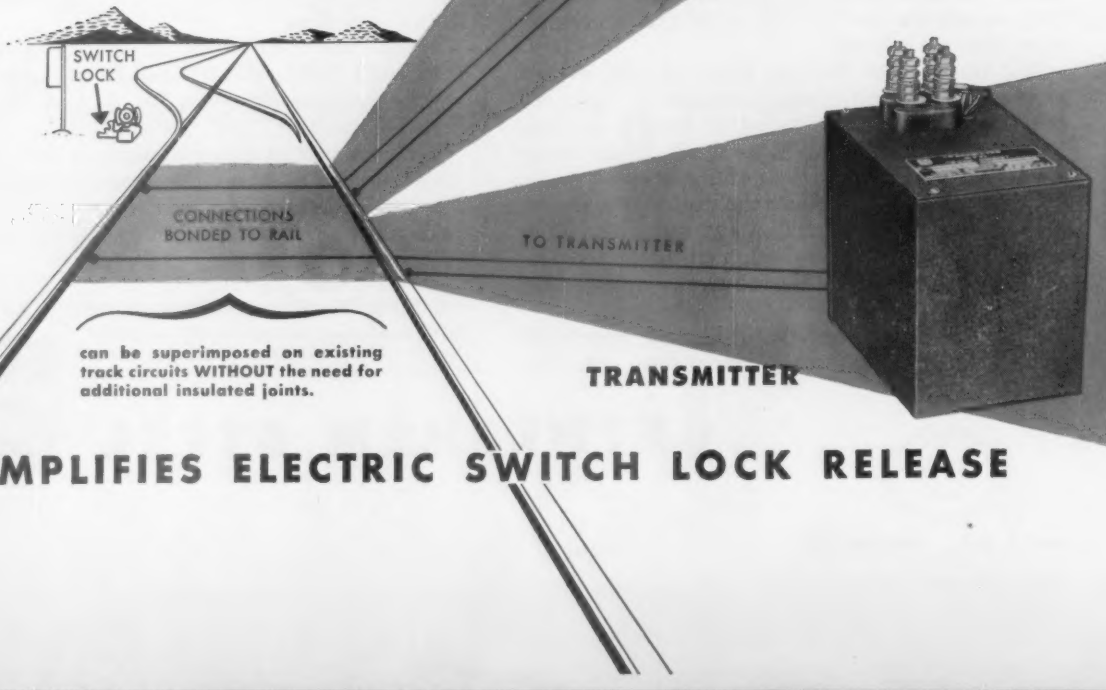


RELAY



RECEIVER

TO RECEIVER


SWITCH LOCK
CONNECTIONS BONDED TO RAIL
TO TRANSMITTER
can be superimposed on existing track circuits WITHOUT the need for additional insulated joints.

TRANSMITTER

UNION SWITCH & SIGNAL

DIVISION OF WESTINGHOUSE AIR BRAKE COMPANY

SWISSVALE PENNSYLVANIA

NEW YORK • ST. LOUIS

CHICAGO • SAN FRANCISCO

SIMPLIFIES ELECTRIC SWITCH LOCK RELEASE

RAILWAY AGE

EDITORIAL AND EXECUTIVE OFFICES AT 30 CHURCH STREET, NEW YORK 7, N. Y., AND 79 WEST MONROE STREET, CHICAGO 3, ILL.

EDITOR ..... James G. Lyne
EDITOR EMERITUS ..... Samuel O. Dunn
EXECUTIVE EDITOR .. William H. Schmidt, Jr.
MANAGING EDITOR ..... C. B. Tavenner
NEWS & FINANCIAL ..... Fred C. Miles
WASHINGTON EDITOR ..... Walter J. Taft
WESTERN EDITOR ..... M. H. Dick

TRAFFIC & TRANSPORTATION
Joe W. Kizzia — Gardner C. Hudson — Ernest V. Celmer

MECHANICAL ..... H. C. Wilcox
G. J. Weihofen — F. N. Houser, Jr.
ELECTRICAL ..... Alfred G. Oehler
ENGINEERING ..... M. H. Dick
R. E. Dove — H. H. Hall, — R. J. McDiarmid

SIGNALING & COMMUNICATIONS
John H. Dunn — Robert W. McKnight

REGIONAL NEWS
New York ..... Robert B. Keane
Chicago ..... Thomas H. Desnoyers

PRESENTATION ..... Franklin Ryan
ASSOCIATE EDITOR ..... Charles Layng
LIBRARIAN ..... Edith C. Stone

EDITORIAL ASSISTANTS
Ann Ortlinghaus — June Meyer
Shirley Smith — Wanda Brown

DIRECTOR OF PRODUCTION
M. J. Figa, Jr., *New York*

DIRECTOR OF RESEARCH
John W. Milliken

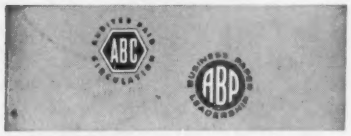
ART DIRECTOR
Russell F. Rypsam

PUBLISHER
Robert G. Lewis, *New York*

ADVERTISING SALES DEPARTMENT

New York 7, N.Y., 30 Church St., WO-4-3060	J. S. Crane C. W. Merriken J. S. Vreeland F. Baker
Chicago 3, Ill., 79 W. Monroe St., RA-6-0794	J. R. Thompson F. W. Smith H. R. Dunlop J. D. Dolan
Cleveland 13, O. Terminal Tower, MA-1-4455	H. H. Melville
Dallas 19, Tex., 3908 Lemmon Ave., Lakeside 2322	Joseph Sanders
Los Angeles 17, Cal., 1127 Wilshire Blvd., MA-6-0553	Fred Klaner, Jr.
Portland 5, Ore., 1220 S.W. Morrison, BR-4993	L. B. Conaway
San Francisco 4, Cal., 244 California St., GA-1-7004	Lewis Vogler
London E.C. 2, Eng. 48 London Wall	Sibley - Field Publishing Co., Ltd.
Frankfurt am Main (16), West Germany, Wittelsbacher Allee 60	International Advertising Agency

Published weekly by the Simmons-Boardman Publishing Corporation at Orange, Conn., and entered as second class matter at Orange, Conn. James G. Lyne, president. Arthur J. McGinnis, executive vice-president and treasurer. J. S. Crane, vice-president and secretary.



SUBSCRIPTION TO RAILROAD EMPLOYEES ONLY IN U. S., U. S. POSSESSIONS, CANADA AND MEXICO, $4 ONE YEAR, $6 TWO YEARS, PAYABLE IN ADVANCE AND POSTAGE FREE. TO RAILROAD EMPLOYEES ELSEWHERE IN THE WESTERN HEMISPHERE, $10 A YEAR; IN OTHER COUNTRIES, $15 A YEAR—TWO-YEAR SUBSCRIPTIONS DOUBLE ONE-YEAR RATE. SINGLE COPIES 50c. EXCEPT SPECIAL ISSUES $1. CONCERNING SUBSCRIPTIONS WRITE R. C. VAN NESS, CIRCULATION DIRECTOR, 30 CHURCH ST., NEW YORK 7.

Workbook of the Railways

Vol. 140, No. 13
April 2, 1956

CONTENTS and
Week at a Glance

5% Fare Rise—Enough or Too Much? . . .

. . . The five per cent increase in basic passenger fares, ICC authority for which has been requested by eastern, western and southeastern railroads, would be the smallest percentage increase in such fares since the end of World War I. Most passenger traffic officers think the request strikes a balance between the need to meet increases in operating costs and possible diversion of traffic. . . . p.7

Rate Boosts Called "Drag" on Business . . .

. . . "An intolerable excess freight cost of $1 billion per year is being imposed on carload freight shippers of our country because of wasteful and unsound practices of American railroads," says A. W. Vogtle, of the DeBardeleben Coal Corporation. These unsound practices, he adds, "reflect the undying hope that newer forms of transportation can be legislated out of business." . . . p.11

ICC Plans More Car Orders . . .

. . . A service order requiring railroads to improve their handling of traffic by placing and pulling cars at industries and forwarding them in road-haul movement within 24 hours is predicted for the near future by Interstate Commerce Commissioner Owen Clarke. The commission also is considering other service orders which would restrict the partial loading and unloading and reduce the free time on export and import traffic at coastal ports. . . . p.13

FORUM: Protect Whose Earnings? . . .

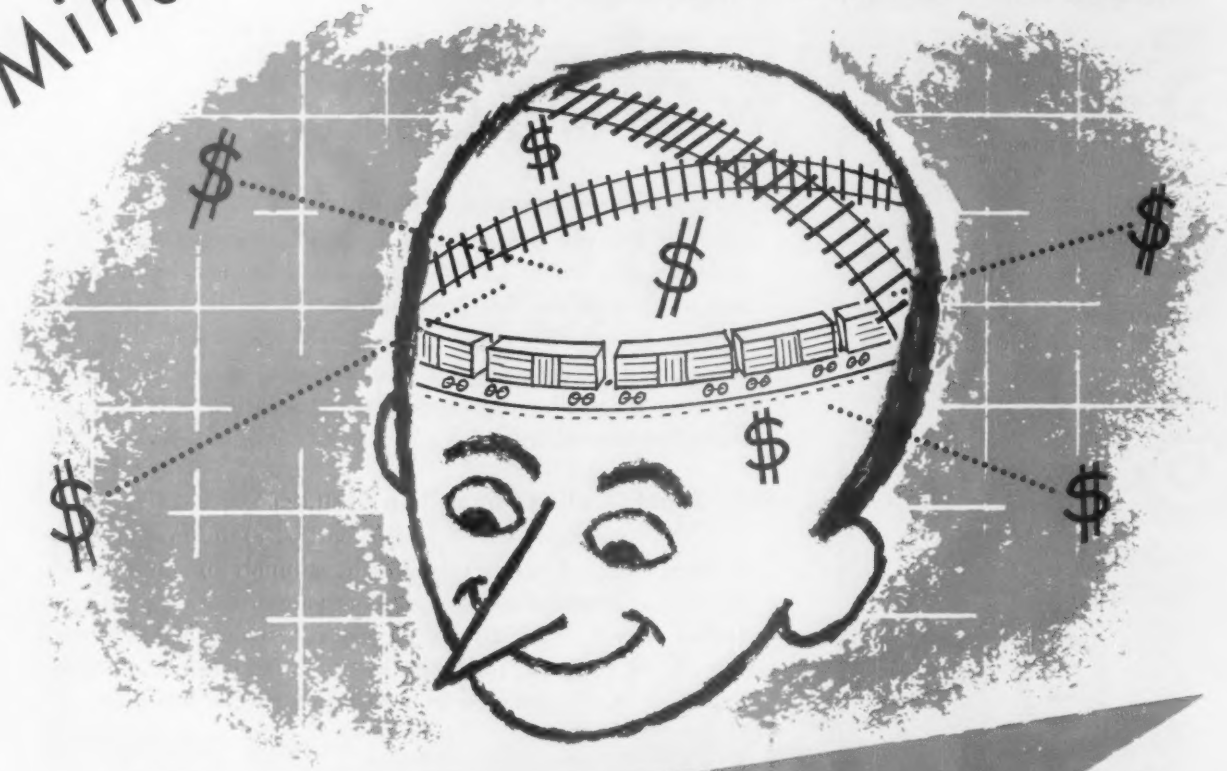
. . . "Phantom" rates published by railroads only erode railroad earnings. If railroad costs permit, perhaps the phantoms can be destroyed, or perhaps the rate structure can be so changed that phantoms cannot exist. Finding the right method to deal with this urgent problem is a challenge to railroad men. . . . p.39

Inside Stuff on Trucking . . .

. . . A vice-president of Pacific Intermountain Express lets his hair down and tells what that highway operator has learned about the right and wrong ways to make money in competition with the railroads. . . . p.40

Mind-full of costs?

...think about this!

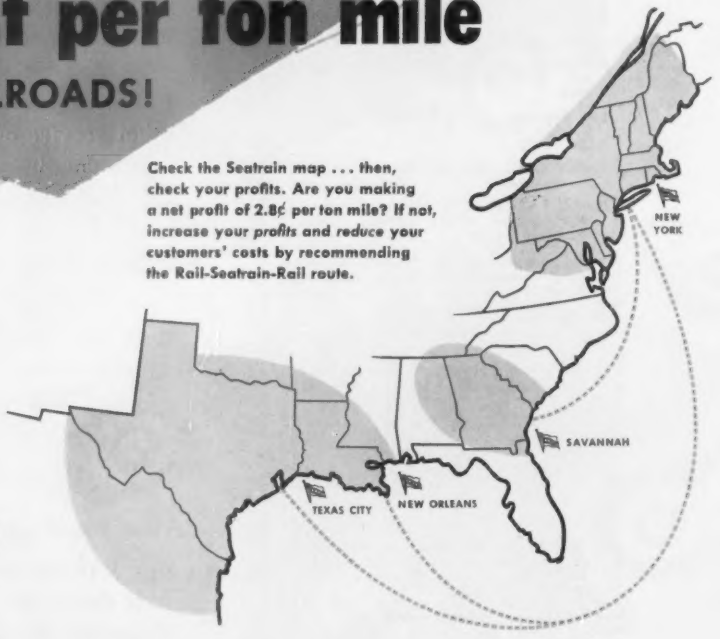


2.8¢ net profit per ton mile

...TO THE RAILROADS!

Profit-minded railroadmen know the advantages of shipments routed Rail-Seatrain-Rail. *Net profits* averaging *2.8¢ per ton mile* are being realized by the railroads on Rail-Seatrain traffic between East and Southwest.* Think about it!

Check the Seatrain map ... then, check your profits. Are you making a net profit of 2.8¢ per ton mile? If not, increase your *profits* and reduce your customers' costs by recommending the Rail-Seatrain-Rail route.



A car routed Seatrain to-day...
will mean twice the profit
for you tomorrow!

SEATRAIN LINES, INC.

15 Broad Street
WHitehall 3-2470
New York 5, New York

Boston, Mass.
HAncock 6-2244

Atlanta, Ga.
WAlnut 7275

New Orleans, La.
RAymond 8481

Cleveland, Ohio
SUperior 1-3063

Houston, Tex.
CApitol 4-0661

Savannah, Ga.
2-3171

Dallas, Tex.
PRospect 8476

**Specific examples on request. Cost figure on I.C.C. basis, revenue figures actual.*

Current Statistics

Operating revenues, one month	
1956	$831,622,598
1955	752,487,353
Operating expenses, one month	
1956	$661,410,900
1955	589,237,148
Taxes, one month	
1956	$85,254,760
1955	74,617,307
Net railway operating income, one month	
1956	$62,877,376
1955	68,899,131
Net income, estimated, one month	
1956	$46,000,000
1955	52,000,000
Average price 20 railroad stocks	
March 26, 1956	106.19
March 29, 1955	91.26
Carloadings revenue freight	
Eleven weeks, 1956	7,558,009
Eleven weeks, 1955	7,027,321
Average daily freight car surplus	
Wk. ended Mar. 17, 1956	3,923
Wk. ended Mar. 19, 1955	33,608
Average daily freight car shortage	
Wk. ended Mar. 17, 1956	4,606
Wk. ended Mar. 19, 1955	1,518
Freight cars on order	
March 1, 1956	141,437
March 1, 1955	18,663
Freight cars delivered	
Two months, 1956	9,080
Two months, 1955	4,430
Average number of railroad employees	
Mid-February 1956	1,041,021
Mid-February 1955	1,005,836

RAILWAY AGE IS A MEMBER OF ASSOCIATED BUSINESS PUBLICATIONS (A.B.P.) AND AUDIT BUREAU OF CIRCULATION (A. B. C.) AND IS INDEXED BY THE INDUSTRIAL ARTS INDEX, THE ENGINEERING INDEX SERVICE AND THE PUBLIC AFFAIRS INFORMATION SERVICE. RAILWAY AGE, ESTABLISHED IN 1856, INCORPORATES THE RAILWAY REVIEW, THE RAILROAD GAZETTE, AND THE RAILWAY AGE GAZETTE. NAME REGISTERED IN U. S. PATENT OFFICE AND TRADE MARK OFFICE IN CANADA.

Departments

Current Publications	67
Financial	65
Forum	39
Freight Car Loadings	9
Letters from Readers	16
Organizations	60
Railway Officers	65
Supply Trade	64

Week at a Glance CONTINUED

Air Car Cuts Yard Time . . .

. . . Up to 30 minutes per train is the gain attributed by the TP&W to the air compressor car at its Peoria yard. This unit not only has the advantages of a fixed charging plant but has some additional ones of its own. . . . p.43

Bridge vs. Hurricane . . .

. . . That costly situation has been plaguing the L&N at its Pearl River crossing for many years, but now the road's engineers think they have a structure that will stand the punishment of winds and waves. . . . p.44

Water Cuts Slipping on Stiff Grade! . . .

. . . Friction of wheels on a normally slippery rail is improved by washing off the greasy coating with a warm water spray, then sanding. . . . p.47

Here's How Words Save Dollars . . .

. . . Radio installations, train-to-wayside and end-to-end of train, are getting to be pretty much routine on American railroads, but the DT&I has developed some original applications of this modern communications technique. . . . p.48

How Southwesterners Cut Claims . . .

. . . It's no secret formula, but an all-the-year-around program of informal cooperative effort shared by railroad men and shippers and consignees. . . . p.55

Coming—Next Week . . .

. . . A provocative contribution in a field of universal seriousness—How executive salary administration can help in improving personnel.

BRIEFLY

Union Pacific to Consolidate Trains . . .

. . . Look for the Union Pacific to consolidate the "Challenger Domeliner" and the "City of Los Angeles" on April 29. The new Chicago-Los Angeles schedule will be similar to the one now used by the latter train. The UP may add an all-coach section to the "City of Los Angeles" when business increases this summer.

Here's why FREIGHT CARS NEED SOLID JOURNAL BEARINGS

It's not just a question of low initial cost: you also choose solid-type bearings because they offer the utmost in load capacity, protection for lading, ease and simplicity of maintenance and many other advantages. They all add up to a BIGGER NET RETURN per car dollar invested.

SURE, you get up to 10% more cars for your money, up to 10% more car availability, and hence more freight revenue per car dollar invested with low-cost solid bearings. But there are many other inherent advantages, too. Let's take a quick look.

1. Unrestricted as to Speed and Load

Steel, stone, ore—you can take the biggest loads with solid bearing cars—right up to axle capacity. Solid bearings reduce these maximum loads to about 700 psi—well within bearing and oil film capacity. (Compressive strength of the babbitt at highest normal temperatures is over 7200 psi.)

What about speed? Oil film pressures increase with speed. You get a thicker film of oil that more than compensates for any viscosity change. *With solid bearing cars you're actually better off in the higher range of freight train speeds.*

2. Ease and Simplicity of Maintenance

The AAR journal bearing assembly is a simple standard. Internal parts can be easily inspected or removed—without special tools or equipment, with the minimum of effort and time.

There's no need for expensive shop facilities or skilled labor. Stocking of parts is simple and replacements are available at any repair point of any line. And unlike other bearing types, in the event of road failure you can almost always make necessary repairs and bring a solid bearing car in on the same wheels.

3. Greater Protection for Lading

With solid bearings lading gets the smoothest possible ride on standard freight car trucks. That's because lateral shocks are flexibly controlled—not rigidly opposed. This means less wear and tear on car bodies, trucks, wheel flanges and rails, too!

4. Weight and Resistance Advantages

In motion the solid bearing glides on a film of oil like a skater on ice. Dynamic resistance is as low or lower than that of any other type of bearing—averages less than one pound per ton regardless of the outside temperature or speed of operation.

Solid bearings also save many tons unsprung dead weight on every moving train. Lighter weight, plus lowest possible resistance in pounds per ton, puts the maximum tractive effort of the locomotive to the business of moving goods.

5. Improved Dependability in Freight Service

Solid bearing performance is getting better all the time. In 1954, there was only one set-off for every 15 cars—equivalent to each car operating 15 years per road failure of a bearing. And this average car was almost 20 years old. You can bet that other bearing types would have a tough time trying to beat that record.

Better still, means are now available to reduce journal box servicing requirements and get still better solid bearing performance. Improved bearings and lubricators are now being installed. Periodic servicing—on a calendar basis—and 3-year repacks will not be far behind.

You save money in many ways with solid bearing cars, and you will save even more in the future. With so many inherent advantages, you just can't beat solid-type bearings for railroad rolling stock!

Magnus Metal Corporation, 111 Broadway, New York 6; or 80 E. Jackson Blvd., Chicago 4.

MAGNUS

Solid Bearings

MAGNUS METAL CORPORATION

Subsidiary of **NATIONAL LEAD COMPANY**

5% Fare Rise—Enough or Too Much?

Revenue needs weighed against uncertain effect on volume; considerable advocacy of larger increase; did shipper reaction to passenger deficit play a part in the request?

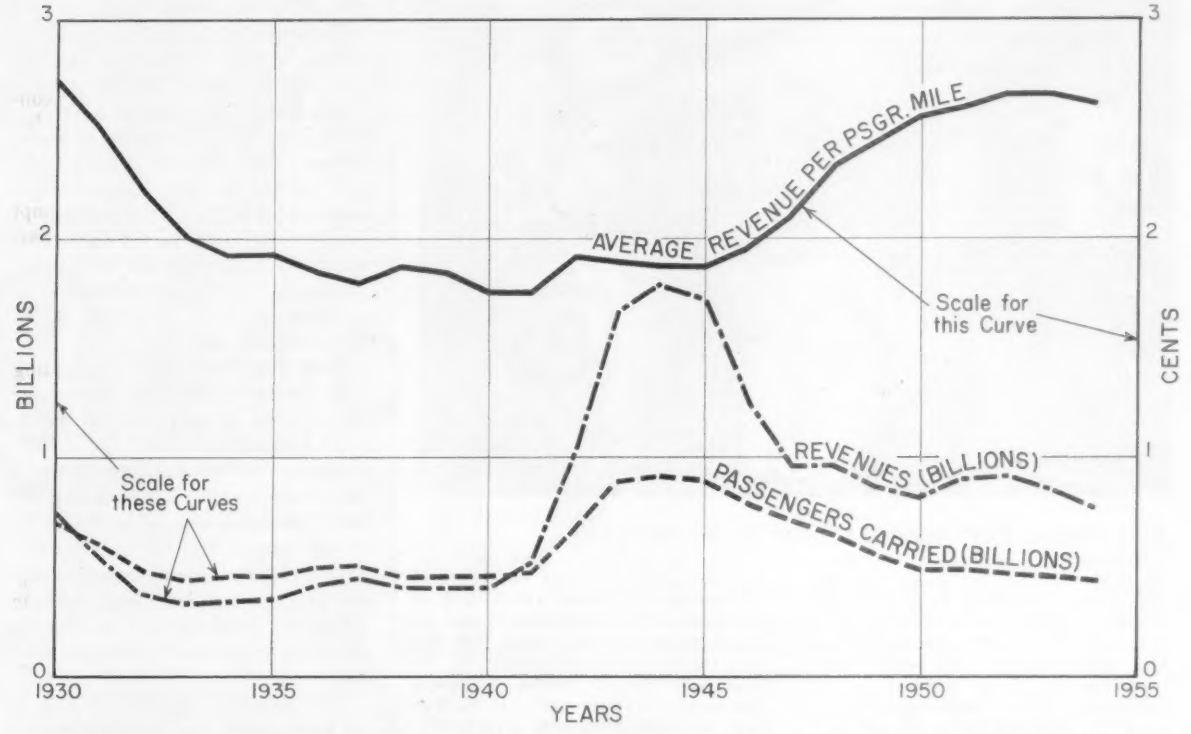
The dilemma of the old shell game which faces every regulated public service in a time of galloping inflation obviously played a part in the request by eastern, western and southeastern railroads for ICC authority to raise basic passenger fares by five per cent, effective May 1.

The relatively modest increase sought—smallest percentage increase in basic fare levels sought since the end of World War I—is held by what appears to be a majority of railroad passenger officers to strike a finely adjusted balance between the need to meet known increases in operating costs, and possible diversion of traffic.

The move for an additional five per cent in all basic charges for passenger service has been taken against a background of:

- What seems to be a hard-core deficit from passenger-train operation of about $700 million a year, despite large cuts in train miles;
- Bitter charges by shippers—particularly coal producers—that they are forced to "make up" this deficit—or something approaching it — through higher freight rates;
- An increase in freight rates of about six per cent (subject to important lower limits);
- Scheduling of a complete and detailed investigation by the ICC, on its own motion, of losses in passenger and allied services;
- Widespread experimentation with radical, low-profile trains designed to cut first cost and maintenance expense, and
- Substantial, if scattered, experimentation with special reductions under basic fares on specific routes, specific trains or on stipulated days.

With a five per cent increase, basic first-class fares in the east would go



Downward trend in railroad passenger picture in postwar years is indicated by graph. It compares curves for average passenger revenue per passenger mile, passengers actually carried, and passenger revenues for the years 1930 through 1954. In all cases, commutation business is not included. Despite cuts in rates from 3.6 cents per mile for first class travel to 3.0 cents during the depression (1930-1940) it was not until the war years of 1941 to 1945 that passenger business picked up. With fare increases in 1942—to 3.3 cents per mile first class in East and South, and 10% in West—the average revenue per passenger-mile leveled out during the war years, although total revenues rose sharply. Postwar increases—up to 3.5 cents per mile first class nationwide in 1947, up to 4.0 and 4.5 cents per mile in East in 1948 and 1949, and up to 3.85 cents per mile first class in South in 1951—were accompanied by declining total revenues and number of passengers carried, the decline lessening in the Korean emergency (1950-1952).

Representative One-Way Fares, Including Proposed Rail Increases, Compared With Air Fares

	RAIL			AIR*	
	Coach	First Class	Roomette**	Coach	First Class
New York-Chicago	$32.25	$42.94	$13.40	$36.30	$49.61
New York-St. Louis	31.92	42.46	16.00	45.10	62.04
Chicago-St. Louis	7.81	10.21	7.55	12.70	16.55
Chicago-San Francisco	58.21	81.49	36.00	76.00	114.75
Chicago-New Orleans	24.93	34.56	14.95	42.10	55.75

*Air Fares Include 10% Tax
**Added to First Class

to 4.725 cents a mile (up from 4.5), and coach fares would jump to 3.544 cents from 3.375.

On western roads—which "sat out" two of the postwar basic fare increases made by eastern lines—the increase would move first-class rates to 3.675 cents a mile (up from 3.5), and boost coach rates to 2.675 cents from the present 2.5 cents.

For first-class travelers using Pullman sleeping-car facilities, the increase of five per cent in basic rail fares would be coupled with a seven and one-half per cent increase in occupancy rates sought by the railroad-owned Pullman Company, also effective May 1.

First class airline fares are based on a rate of six cents a mile, but air coach, or tourist, fares applicable on fast, if less comfortable planes, run between 3½ and four cents a mile on scheduled airlines, and even lower on so-called organized non-skeds. Comparative railroad and air fares between representative points, with present and proposed rail and Pullman fares (see accompanying table), show the price market with which railroads have to deal.

In price competition for the passenger dollar, major bus lines are said to be thinking in terms of boosting fares, while the airlines reportedly would be delighted if the Civil Aeronautics Board would permit them to raise their fares, at least for first-class travel.

However, as one airline spokesman indicated, this attitude does not mean that airlines do not expect to reap some benefit from the railroad action. Air coach service, which the ICC says outstripped rail coach travel last year for the first time, is expected by the air operators to pick up some former rail travelers.

Rising Costs — It is generally agreed within the industry that the eastern roads which have the largest stake in passenger revenues led something of a countrywide campaign among their confreres to convince them that revenue needs dictated a request for an increase. For the first time since 1948, western roads joined eastern carriers in seeking a simultaneous increase. The southeastern roads, previously reported to be considering participation, acted just before presstime for this issue.

There was some credence given to reports within and without the industry to the effect that the attempt to get higher fares was at least partially inspired by a desire to show shippers that railroads "mean business" about tackling the passenger deficit. Part of the revenues from the freight rate boost, so the talk goes, was to be applied to the continuing passenger losses. A comparable rise in passenger fares, it is said, might help customer relations.

Not Big Enough?—A spokesman for one midwestern road commented that several railroad presidents had wanted to ask for a 10% increase, possibly thinking it would be a more realistic figure, if any appreciable cut were to be made in rising costs.

One eastern railroad executive said the five per cent increase is not expected to yield enough revenue to offset added costs of passenger service.

The issue that apparently had to be surmounted was the need to reconcile a desire to offset these increasing costs with the need to avoid chasing passengers to other means of travel.

Several railroad spokesman indicated that to have gone after more

(Continued on page 10)

800 Attend FRP Annual Dinner in Washington

At the ninth annual dinner of the Federation for Railway Progress in the Sheraton Park Hotel, Washington, D.C., on March 22, the attendance was approximately 800—with wide representation from railroads in all territories, railway labor organizations, executive and legislative branches of the government, and the Interstate Commerce Commission. Principal speaker was W. P. Kennedy, president of the Brotherhood of Railroad Trainmen, whose address was summarized on page 8 of last week's Railway Age. Mr. Kennedy was introduced by Daniel P. Loomis, chairman of the Association of Western Railways. A report on the federation's activities was presented by Professor William Leonard, FRP president. The federation's annual awards were bestowed before the dinner, recipients being Patrick B. McGinnis, president, Boston & Maine (passenger service award); D. B. Wallace, assistant manager, public relations, Canadian Pacific (public relations award); and Julian Griffin, transportation editor, Cleveland Press (journalism award). Above, left to right, are: Mr. Kennedy; Mr. McGinnis; Mr. Wallace; Mr. Griffin; and James G. Lyne, FRP chairman and editor of Railway Age. Mr. Lyne presided at the dinner.

RAILWAY MARKET OUTLOOK THIS WEEK

a RAILWAY AGE Workbook Page

Freight Car Loadings.—Loadings of revenue freight for the week ended March 24 were not available as this issue of Railway Age went to press.

Loadings of revenue freight for the week ended March 17 totaled 685,985 cars; the summary, compiled by the Car Service Division, AAR, follows:

REVENUE FREIGHT CAR LOADINGS
For the week ended Saturday, March 17

District	1956	1955	1954
Eastern	118,297	118,518	108,692
Alleghany	140,062	129,822	113,130
Pocahontas	56,242	51,473	43,324
Southern	126,761	106,771	120,856
Northwestern	73,549	73,560	68,831
Central Western	115,535	113,256	100,949
Southwestern	55,539	57,124	54,177
Total Western Districts	244,623	244,340	223,957
Total All Roads	685,985	650,924	609,959
Commodities:			
Grain and grain products	46,904	44,034	41,159
Livestock	7,201	6,894	7,273
Coal	124,984	106,309	98,221
Coke	13,617	10,620	8,755
Forest Products	42,028	41,341	39,241
Ore	21,973	16,789	14,888
Merchandise l.c.l.	61,780	62,114	65,156
Miscellaneous	367,498	362,823	335,266
March 17	685,985	650,924	609,959
March 10	697,601	662,283	609,937
March 3	710,996	653,575	590,576
February 25	687,018	631,072	595,031
February 18	698,319	650,248	618,623
Cumulative total, 11 weeks	7,558,009	7,027,321	6,762,722

In Canada.—Carloadings for the seven-day period ended March 14 totaled 73,273 cars, compared with 77,607 cars for the previous seven-day period, according to the Dominion Bureau of Statistics.

	Revenue Cars Loaded	Total Cars Rec'd from Connections
Totals for Canada:		
March 14, 1956	73,273	35,485
March 14, 1955	67,829	31,863
Cumulative Totals:		
March 14, 1956	791,421	364,792
March 14, 1955	688,350	321,129

New Equipment

PASSENGER CARS

► *Hudson & Manhattan.*—Obtained court authority to solicit bids for 50 to 56 lightweight air-conditioned cars.

FREIGHT CARS

► *Boston & Maine.*—Directors authorized rebuilding of 350 gondola cars at Concord, Mass., shops; estimated cost $500,000.

LOCOMOTIVES

► *February Installations Down.*—AAR reports new units put into service by Class I roads in February totaled 118 (all diesel-electrics), compared with 126 (all diesel-electrics), installed in January; installations of 244 new units in 1956's first two months compared with 221 (also all diesel-electrics), in like 1955 period; Class I roads had 897 new units on order March 1—including 870 diesel-electrics, 12 electrics and 15 gas turbine-electrics—compared with 455 new units on order March 1, 1955, which included 445 diesel-electrics, 10 electrics.

Maintenance Expenditures

► *Up 12.4% in January.* — Expenditures for maintenance of equipment, way and structures were $29 million or 12.4% higher for Class I roads last January than in January 1955, ICC's Bureau of Transport Economics & Statistics said in report summarized below:

	January '56	*January '55*	*% Increase*
Maintenance of Way & Structures	$105,371,339	$96,440,186	9.3
Maintenance of Equipment	157,714,081	137,542,998	14.7
Totals	263,085,420	233,983,184	12.4

Overseas

► *Iran to Buy Equipment Here.*—A $14,000,000 credit agreement between Washington's Export-Import Bank and Iran will finance purchase in this country by Iranian State Railways of diesel-electric locomotives, spare parts, maintenance shop equipment and tools.

New Facilities

► *Belt of Chicago.*—Projects underway include additional storage units, buildings and driveway in connection with rail-to-water coal transfer facilities at 100th street, Chicago; approximate cost $900,000; scheduled for completion in 1957.

(Continued on next page)

RAILWAYS IN THE MARKET—THIS WEEK

CONTINUED

► *Great Northern.*—Plans to remodel and enlarge its Edmonds, Wash., passenger station; when project is completed next fall, Edmonds will become a conditional stop for the "Empire Builder," "Western Star" and the "Internationals."

► *Missouri Pacific.*—Will spend $457,900 to extend its line from Nashville, Ark., 9.5 miles toward Dierks, where it will meet a line extended by DeQueen & Eastern 9.5 miles from Dierks toward Nashville at cost of $169,238; combined 19-mile line is to provide service to paper mill to be built at Pine Bluff.

► *Monon.*—Construction projects under consideration at indicated estimated costs, include: relaying 25 miles of 100-lb rail with 115-lb rail ($1,000,000); renewing 10 miles of out-of-face ballast and replacing 10,000 cu yds of patch ballast ($90,000); and repairing masonry culverts by Intrusion-Prepakt method ($50,000).

► *Norfolk & Western.*—Will spend $1,100,000 to construct a six-mile line from Carbo, Va., to a new Clinchfield Coal Corporation mine at Hurricane Fork; cost includes $440,000 to purchase two miles of abandoned right of way from the Clinchfield, over which a portion of the new line will be constructed.

► *St. Louis Southwestern.*—New projects scheduled for this year include: Extension of Dallas freight depot ($142,615); construction of yardmaster towers at Shreveport and Texarkana ($71,960); relaying 20 mi of main track and 9 turnouts with 119-lb rail ($653,430); relaying 30 mi of main track and 19 turnouts with second-hand, 112-lb rail ($103,570); relaying 19.25 miles of main track and 23 turnouts with second-hand, 85-lb rail ($126,760); installation of CTC between Tyler and Corsicana ($555,946).

► *Soo Line.*—New construction projects, estimated costs in parentheses, include: highway underpass at North avenue, River Forest, Ill. ($800,000); replacement of existing swing span over St. Marys River at Sault Ste. Marie with lift span, to improve navigational requirements ($2,500,000); remodel present building at Stevens Point, Wis., for car shop facilities ($450,000); and replace 13 timber trestles with permanent work ($600,000); also under consideration are several large yard revisions, details of which have not been disclosed.

► *Western Pacific.* — New construction projects (costs in parentheses), include: replacing 9.23 miles of 100-lb rail with new 78 ft welded 136-lb rail between Sandy Pass, Nev., and Smoke Creek ($450,000); replace 9.77 miles of 100-lb rail with 78 ft welded 136-lb rail between Trego, Nev. and Cholona ($490,000); replace 7 miles of 100-lb rail with 78 ft welded 136-lb rail between Jugo, Nev. and Venado ($330,000); remodeling mechanical department building at Sacramento, Cal. ($75,000); start preliminary work for new main line tunnel at Milepost 250 (Storrie, Cal.), approximate length, 3,120 ft, to bypass slide area ($2,000,000); replacing 444 lin ft of timber lining with concrete lining in tunnel No. 30 at Keddie, Cal. ($90,000).

(Continued from page 8)

than a five per cent hike at this time would have caused too much diversion of traffic, and there was fear, too, that the ICC might not approve an increase of more than that.

Some roads feel the five per cent increase will cause no diversion of traffic at all, or at least not enough to nullify the objective of the increase, which is to obtain added revenues.

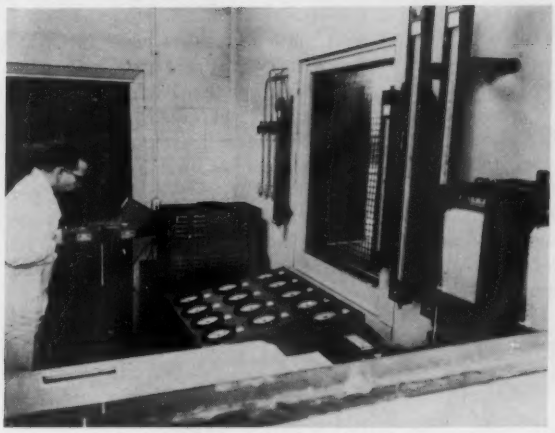
While some people in the industry expressed fears there might, nevertheless, be considerable diversion, Elmer Gordon, passenger traffic manager of the Chicago & Eastern Illinois, was among those who felt the diversion would be almost negligible. The Milwaukee went so far as to predict just how much diversion from its own lines it expected: $61,000 in "shrinkage," but the Milwaukee also said the raised fares would mean additional revenues of $618,000.

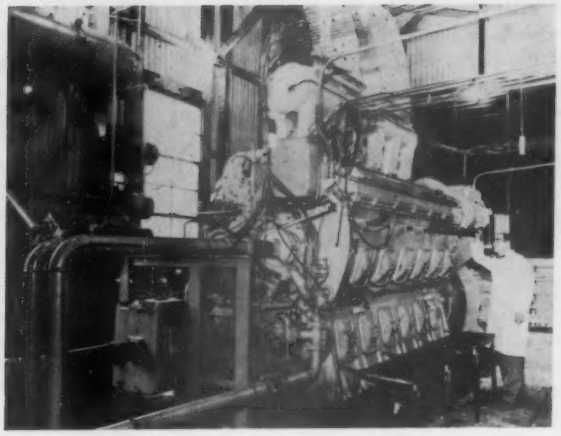
Earl Padrick, chairman of the Trans-Continental and Western Passenger Associations, said "our largest increase in passenger fares is $6.35 on roundtrip tickets from Chicago to California points. . . . I believe there will be no diversion of traffic." He added that automobile prices and automobile maintenance costs have certainly increased more than five per cent since the last railroad increase.

The Pennsylvania pointed out that a New York City-Philadelphia coach ticket would cost only 15 cents more after the increase, and that a coach ticket from New York to Pittsburgh, longest ride on its lines, would go up only $1.80.

The Interstate Commerce Commission paved the way for filing of the fare-increase tariffs with a March 26 order which granted the necessary relief from regular filing rules and outstanding commission orders. Thus the master tariff and connecting-link supplements to present tariffs were expected to have been filed by the end of last week.

The commission's March 26 order also revealed that "an investigation will be instituted into the lawfulness of the proposed increased fares and a hearing afforded." Details as to the nature of the investigation were not immediately available, but it was expected to be an expedited-procedure case like the Ex Parte 196 proceeding out of which came the recent increase in freight rates.





"Tremendous" Fuel Cost Savings Expected from SAL Research Program

"Tremendous" savings in locomotive fuel costs are the predicted result of a diesel engine research program by the Seaboard Air Line.

This forecast, made by C. O. Johnson, test engineer, is seconded by C. H. Sauls, vice-president—operations.

At its Jacksonville, Fla., test laboratory, the Seaboard is operating what is thought to be the first railroad-owned diesel engine test installation with instrumentation for research. Only diesel engine builders and oil companies are said to have previously engaged in such work. A semi-permanently installed 12-cylinder 1,000-hp Electro-Motive diesel engine and generator have been equipped with instruments to measure temperatures and pressures and to obtain other data which will enable the SAL to study problems of fuel combustion and consumption of lubricating oil.

Already the Seaboard is operating its motive power on varying mixtures of "economy" type fuels. It is expected that eventually the locomotives will be operating on a dual-fuel system allowing them to burn only low-grade fuels at high engine speeds. Changes in engine design and arrangement resulting from this research also may eventually cut fuel consumption.

The use of economy fuels is the immediate objective of the research program.

Complete instrumentation (left above), includes an oscilloscope, here being observed by R. F. Green, general technician. The engine is operated and observed from this room which is adjacent to the main test shed (right, above), where the engine and all its auxiliary facilities are installed.

Rate Boosts a "Drag on All Commerce"

A. W. Vogtle says need for rate increases is based on "wasteful and unsound" practices which reflect "undying hope" newer transport media "can be legislated out of business"

The seven general freight-rate increases since World War II have imposed a cost burden on railroad shippers "of such enormity as to be a drag on all commerce," A. W. Vogtle, vice-president in charge of sales and traffic, DeBardeleben Coal Corporation, said in Chicago recently.

Mr. Vogtle, in a speech prepared for the 18th annual American Power Conference, said that "an intolerable excess freight cost of $1 billion per year is being imposed on carload freight shippers of our country because of wasteful and unsound practices of American railroads."

"The preventable rail losses would be unthinkable in any other business and the unconcern of railroad executives over the years about this situation is the enigma of present-day business," Mr. Vogtle continued. He itemized the losses as $700 million in passenger service, $100 million in merchandise freight service and $200 million in lesser charges on Government freight.

Regulatory agencies permit railroads to apply a cost-plus system, disregarding waste and inefficiency, to bring income up to outgo by increasing carload freight rates to absorb deficits, Mr. Vogtle added.

Mr. Vogtle said railroad passenger service has been operated at a growing loss since 1920, other than the 1942-45 war years; that passenger service has not been reduced in any appreciable relation to the 50% reduction in passenger traffic in the past 10 years; that the passenger fare has declined 20% in the past 30 years while the passenger expense has doubled.

Barren Hope—"The railroads are not making any effectual attempt to correct this situation, although 25 years should be sufficient time for a businesslike management to put an end to such terrific drain," Mr. Vogtle said. "The stark truth is that these unwise railroad practices reflect the undying hope that the newer forms of transportation can be legislated out of business. This is a barren hope.

"Fresh evidence of this hope is railroad support of a Cabinet Committee report, which, if translated into law, will give railroads great

flexibility in quick rate changes with very much modified restraint from the Interstate Commerce Commission. The railroads completely ignore another Cabinet Committee report which recommends substantial reduction in rail freight rates on coal.

"The other forms of transport and many shippers are resisting this railroad supported program of legislation because the result would be still lower rates on competitive traffic, to destroy the transportation competitors; and still higher rates on noncompetitive traffic, particularly coal, coke, and other heavy commodities, to pay for the fight.

"Worst feature of the senseless fight of railroads with other forms of transportation and the enormous waste it incurs is the underlying conception of railroads and regulatory authorities that carload freight shippers should carry the cost of the conflict by payment of rates that are exorbitant, inequitable and wholly unfair.

Reckless Course—"This reckless course of the railroads is so contrary to sound business practices that stockholders should be deeply concerned about these management policies, and the ICC should be aroused to its duty to carload freight patrons of railroads.

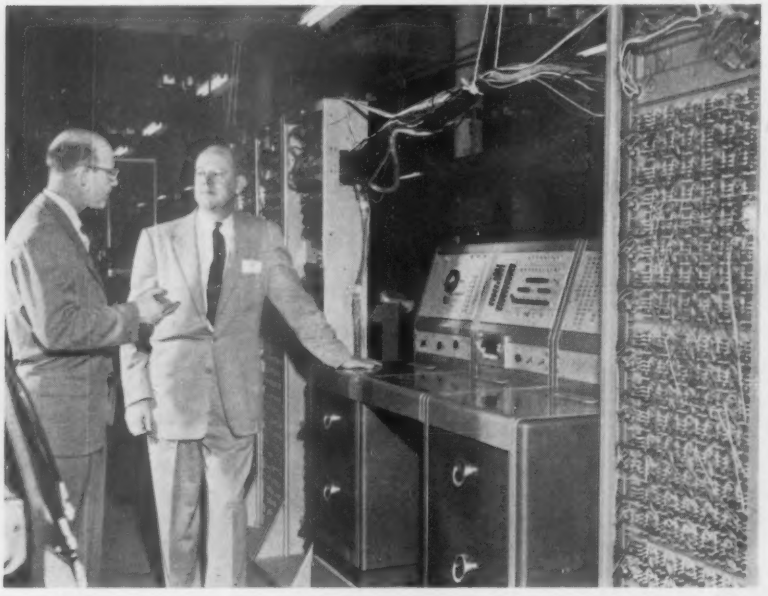
"The answer lies not in impeding use of newer forms of transportation progress. Nor should railroads be encouraged to continue to place the blame elsewhere for difficulties they themselves have created and which only they can cure.

"The cure is one of adjustment. The ideal is for each mode of transportation to fit sensibly into its own economic sphere according to the choice of patrons. This will assure lowest cost transportation for freight shippers and profitable operations for the carriers."

Parallel Industries—Mr. Vogtle said coal and railroad are parallel industries and that their salvation "would appear to depend on cooperation based on a realistic and practical view of mutual problems" Instead, he said, every cost and price reduction by the coal industry is nullified by repeated freight rate increases by railroads. He said rail freight rates on coal have been increased an average of 88 cents per ton in the postwar period at a time when the coal industry absorbed its entire increase in labor costs of 78 cents per ton

"It is utterly beyond its [the coal industry's] capabilities to absorb the increased rail freight charge of 88 cents per ton," Mr. Vogtle said.

He predicted that coal consumers will avail themselves of less expensive competitive means of transportation, such as by barge or truck. Utilities which are building new stations in the coal fields will transport electrical energy by wire. The "flight from railroads" also means a loss of coal to the railroads, likewise a loss to the mines in coal fields dependent exclusively on rail transportation.



Ticket Device Called World's Fastest

Three railroads and a Stamford, Conn., manufacturer will have completed within the year what they call the "fastest ticket reservation robot the world of railroading has ever seen." The electronic device will be headquartered in Grand Central Terminal, New York. Built by Teleregister Corporation, it will serve the New York Central, the New Haven and the Santa Fe. The system will be capable of handling reservations, sales and cancellations of space on all trains departing daily for seven months in advance of individual departure dates. Additional railroads are said to be planning to join the communications network (Railway Age, July 18, 1955, p. 10, and Sept. 5, 1955, p. 15). James E. Hawthorne (right), is being briefed on the ticket tabulator by S. J. Sindeband, president of Teleregister. The electronic system will be able to handle as many as 1,000 reservations an hour. Passengers will be able to learn within seconds what accommodations are available for any specific date.

B&M, BAR Offer Free Pickup and Delivery

Free pickup-and-delivery service for less-than-carload freight was inaugurated by the Boston & Maine March 15. The new service, P. J. Mullaney, traffic vice-president, said, is in effect at 48 points on the B&M and covers freight which will be moved entirely within New England on lines of New England railroads, and stations in New York state, such as New York City, on lines of New England railroads.

The Bangor & Aroostook began free pickup-and-delivery service at its stations on March 19. Herbert W. Moore, BAR vice-president—sales, said the new service is a result of a survey made throughout the road's territory last year which showed a majority of shippers and receivers of freight in northern Maine wanted the service.

Gass Expects More Steel For Freight Cars

It is "confidently expected" that supplies of steel being channeled to freight-car builders "will be further increased in the months ahead," Chairman Arthur H. Gass of the Car Service Division, Association of American Railroads said in his latest

review of the "National Transportation Situation."

Mr. Gass made this prediction after giving increased steel supplies credit for "the steady increase in car installations over the past four months." He was referring to the November-February period when new-car installations by Class I railroads and their car-line affiliates ranged upwards from November's 3,286 to February's 4,926.

The latter included 4,800 cars installed by Class I roads, which also retired 4,341 cars in February. Thus the month's gain in ownership was 459 cars. February also brought a similar gain (485 cars) in the serviceable fleets of Class I roads, the bad-order backlog having been reduced by 26 cars during the month.

The serviceable fleet on March 1 this year totaled 1,620,671 cars, up 14,405 cars from the total for March 1, 1955.

In his review of equipment conditions by types of cars, Mr. Gass reported tight or shortage situations as to all but automobile cars, stock cars, and covered hoppers. February checks indicated that 19.77% of the cars placed during that month were detained beyond the free time. That compared with 16.57% in February 1955.

ICC Plans More Car Orders

Clarke indicates that additional operating rules and penalty demurrage may be imposed—calls adequate earnings the only effective builder of adequate car fleet

Interstate Commerce Commissioner Owen Clarke, who is in charge of the commission's car-service work, has predicted that the commission will probably issue "in the near future" a service order requiring railroads "to improve their handling of traffic by placing and pulling cars at industries and forwarding them in road-haul movement within 24 hours."

The commissioner also revealed that the commission has under consideration other service orders which would restrict the partial loading and unloading and reduce the free time on export and import traffic at coastal ports. And he warned that the commission "may be compelled" to issue a penalty-demurrage order, unless there is a reversal in the recent upward trend in the number of cars held beyond the free time.

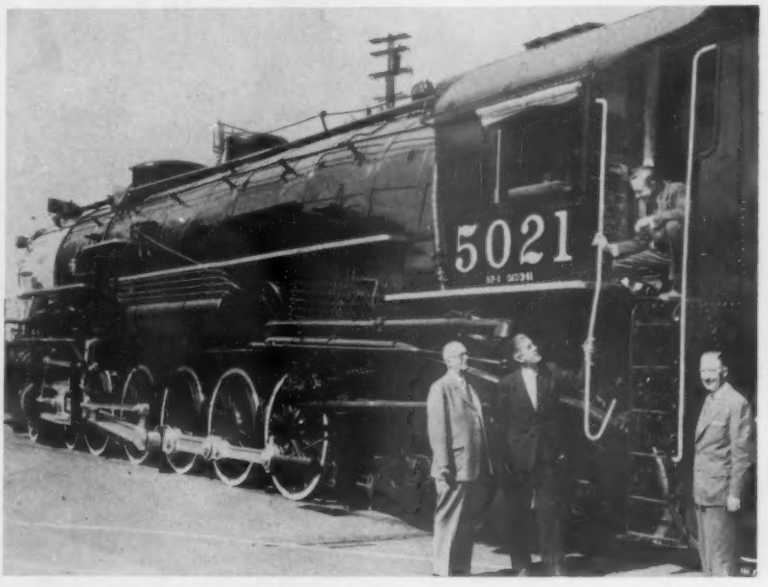
Earnings the Key — Commissioner Clarke made these statements in a March 22 address before the Allegheny Regional Shippers Advisory Board at Pittsburgh, Pa. At the same time, he asserted that he is "firmly convinced that the one thing, and the only thing which will ever enable and cause the railroads to carry out a sufficient program of freight car acquisition and plant improvement will be to permit them to earn sufficient net return to raise the new capital required for these purposes."

"In the decade since World War II," the commissioner also said, "the railroads have been expected to supply adequate cars, improve their roadways, and make new cost-reducing and service-improving investments on the very lean and substandard average return of 3½ to 4½% on their depreciated capital investment. Today's inadequate car supply has been one of the inevitable results of that low-return policy."

"Shippers who have strenously resisted post-war rate increases to cover inflationary costs should not be surprised at the result. But in their own long-run interest they should ponder the implications for the future of continuation of those policies discouraging to adequate private investment."

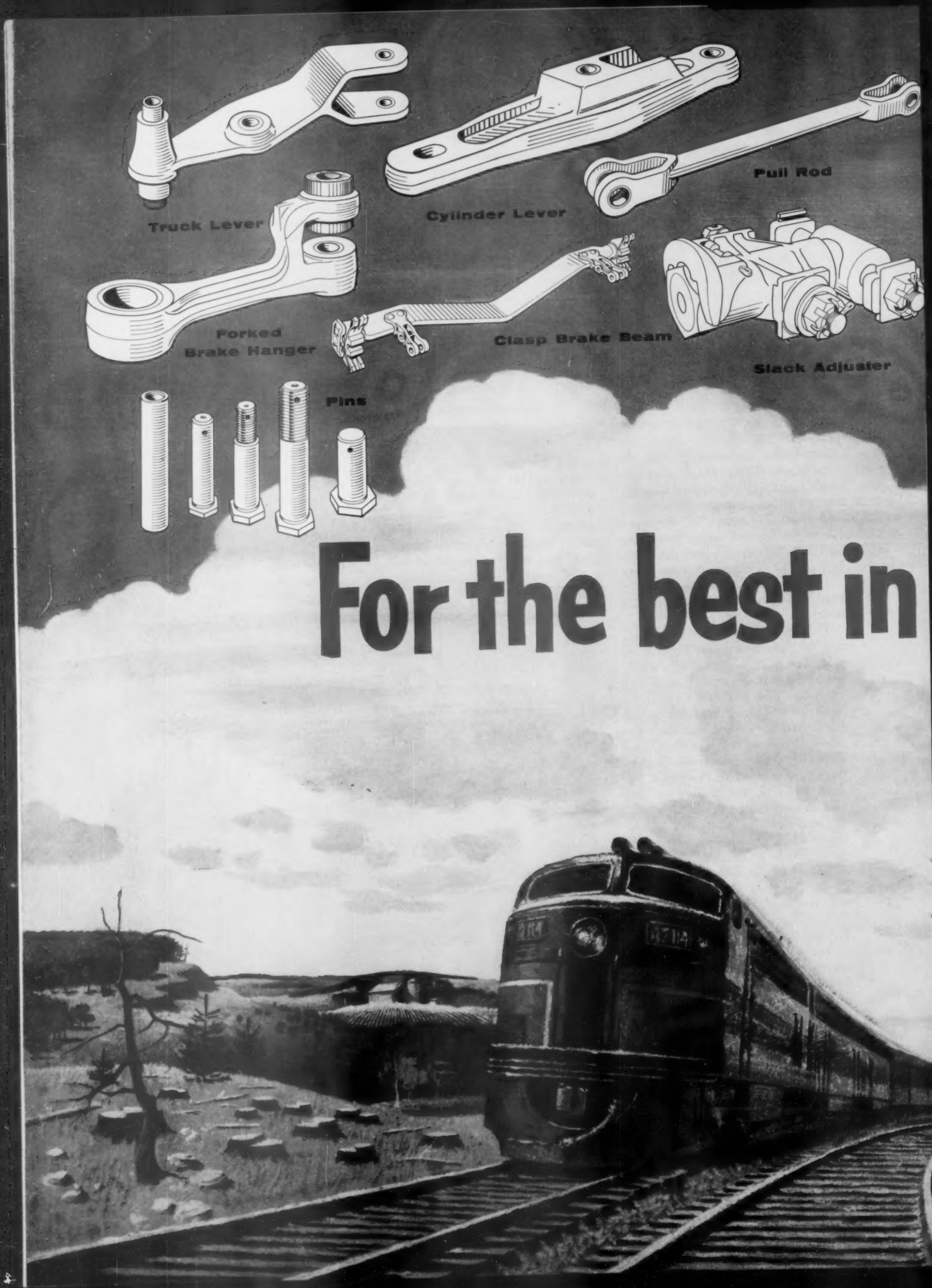
Attitude of Confidence—Mr. Clarke cited the Ex Parte 196 rate increase as evidence that the ICC is now "doing its part to help improve rail earnings." He went on to express his belief that "current regu-

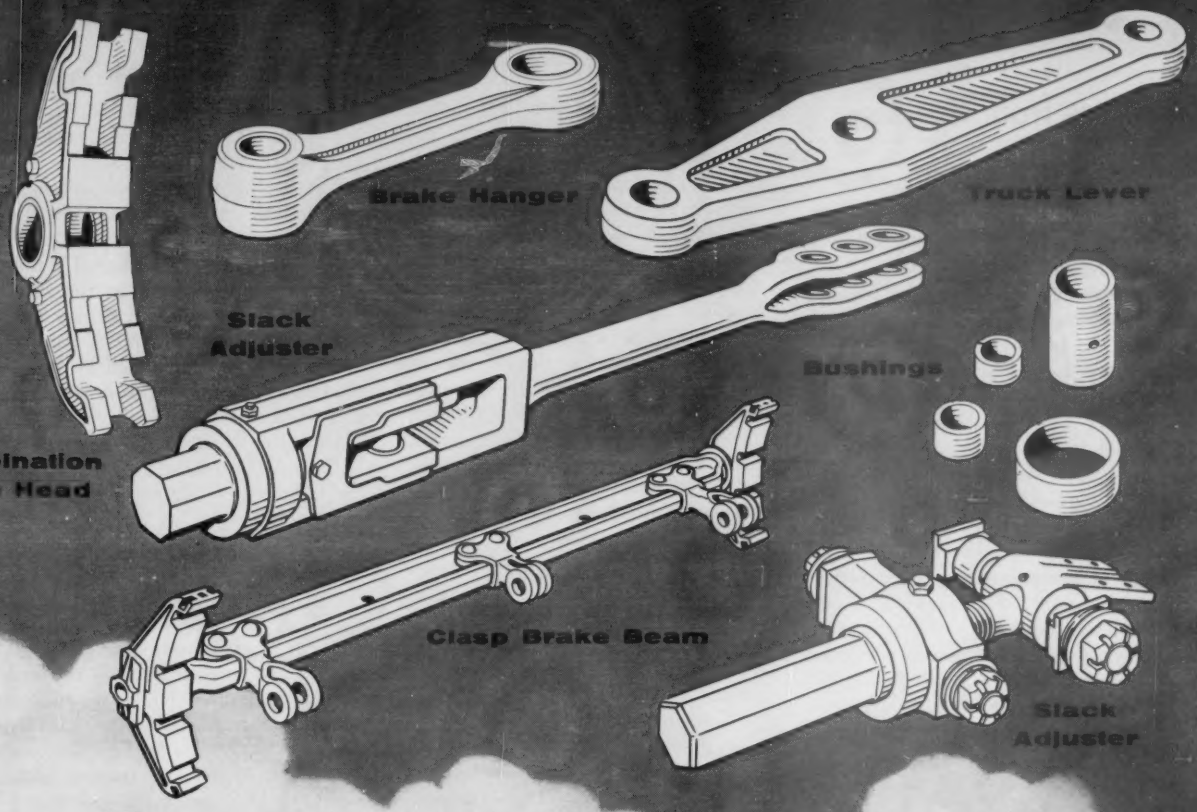
(Continued on page 56)



Last of the "Southern Pacific Type" Steamers

No. 5021, which first went to work for the Southern Pacific in 1926, and made her last trip pulling a freight train from Portland, Ore., to Los Angeles in October 1955, is now on permanent display at the Los Angeles County Fair Grounds, Pomona. The display is sponsored by the Southern California Chapter, Railway and Locomotive Historical Society. Walter H. Thrall, Jr., (in cab), chapter chairman, is shown as he took possession of the locomotive. Representing the SP are, left to right: George B. Hanson, assistant to president; Paul D. Robinson, Los Angeles Division superintendent; and W. J. McHugh, assistant superintendent of motive power.


Truck Lever
Cylinder Lever
Pull Rod
Forked
Brake Hanger
Clasp Brake Beam
Slack Adjuster
Pins
For the best in



brake performance...

Bring your parts requirements to the source that's equipped for SERVICE

Brake repair parts from two sources may *look* alike—but they don't necessarily *perform* alike. Each part you order from ASF gives you the finest possible service . . . because each reflects constant brake research and development.

As just one example, all ASF Pins are now induction-hardened. The equipment needed to do this job meant a big investment. But, it was entirely justified by a big increase in effective depth of hardness . . . another way of saying *longer service life.* As another example, Brake Heads now have hardened faces . . . additional processing that improves service performance.

That's typical of the advantages—*to you*—of working with brake specialists. And when it comes to production efficiency, ASF lines are specially set up for producing all types of brake components. All operations, from forging, casting and welding through final machining, are handled by us: *you order from one source with one responsibility for quality.*

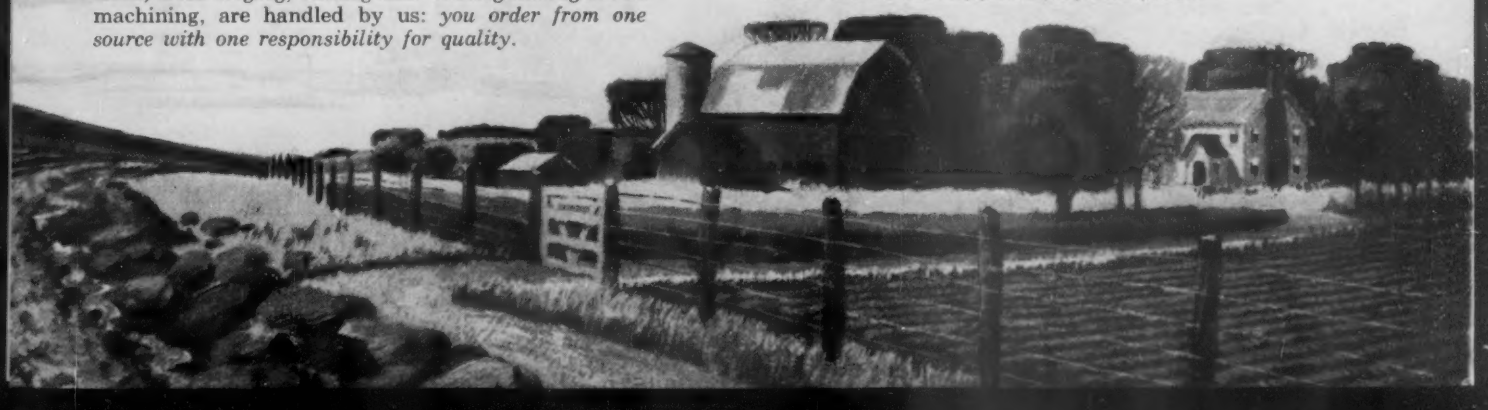
To serve you promptly we maintain a large inventory of active brake parts for your convenience. So, when you want brake service, call in your ASF Representative!

ASF

AMERICAN STEEL FOUNDRIES

Prudential Plaza, Chicago 1, Illinois

Canadian Sales: International Equipment Co., Ltd., Montreal, Quebec



Letters from Readers

Is Fare Increase Wise?

HASBROUCK HEIGHTS, N. J.

TO THE EDITOR:

There has recently been considerable publicity given to the proposed five per cent increase in passenger fares. It seems to this writer that the time has come for railway passenger officers to come before the industry and state whether they wish to stay in the business of transporting people, or to price themselves out of the field.

This is the time of tremendous competition in the transportation field. It seems to many that the wiser course would be to lower fares, on the basis of lower fares attracting more passengers, thus a larger profit based on a greater number of small-profit movements. There still is a large market for moving people. The congestion in larger cities has opened greater fields for securing additional business.

There have been new developments in equipment that forward-looking railways could well install, along with attractive pricing, which will be the key to increased riding and profitable operation. Examples are the installation of Siesta type coaches and solid self-propelled trains, also more extensive use of vending-machine dining facilities.

There is much that can be done to improve the passenger situation without getting out of the field entirely. Too much of the future of railroading is at stake to allow this important facet of service and public relations to be allowed to become so degraded.

WILLIAM R. WRIGHT

Why Not a National Pool of Premium Cars?

YOUNGSTOWN, OHIO

TO THE EDITOR:

The conclusion of your "Roundtable" on freight cars, November 14 Railway Age, says "the BIG problem" is how to encourage railroad ownership of an adequate supply of truly modern cars.

Obviously, a new system is necessary because the present one doesn't work well enough. Because interchange robs the purchaser of the use of his modern car, he won't invest.

Why not sell $20,000,000 capital stock in a Railroad Car Corporation to all railroads in proportion to the car-miles they operate, or their gross freight revenue? The largest company would have to contribute only $20,000,000, and that is a tiny price to pay to secure the future of the industry. With equipment financing, this $20 million will buy 10,000 of the most modern cars designable.

It is very expensive to dead-head cars home, and even more expensive to keep cars idle 21 hours per day. These new cars would have no home. They would keep busy much more, and thus be cheaper to use in the long run. Per diem charges will not admit this, so in addition to flat per diem, any deficiency in the return on investment in the Railroad Car Corporation should be recovered by a small mileage charge, computed in the same way as on other private cars.

A road known to terminate more cars than it originates would be instructed to send RCC cars it can't use to the nearest line that originates more than it terminates. In times of oversupply, these cars with no home would keep busy, and less modern carrier owned cars would be tied up. Terminal roads would not get stuck for high per diem charges on modern equipment.

Why wouldn't this solve everybody's problems?

E. L. TENNYSON
Professional Engineer

Iranian Visitor Says "Thanks"

TEHERAN, IRAN

TO THE EDITOR:

Six American railroads and several electric and electronics manufacturers were visited during a recently completed year-long American tour arranged for this winter. I spent a year accumulating information on U.S. railroad communication, signaling and traffic control systems. The tour was arranged through the International Industrial Training Program and is a part of the overall U.S. foreign aid program. The schedule was set up by the Bureau of Apprenticeship of the Department of Labor, and by the AAR.

Participating railroads were the Pennsylvania, Southern, Frisco, Santa Fe, Southern Pacific and Union Pacific. Manufacturers included Union Switch & Signal Division of Westinghouse Air Brake, Motorola, General Electric, Sierra Electronics, and Leukurt Electric. Information gathered will be used in an already initiated program of signal and communications modernization on the 1,700-mile single-track Iranian railroad. During World War II, this was the route operated by the Military Railroad Service to deliver material to Russia. The MRS Iranian operation was commanded by A. E. Stoddard, now president of the Union Pacific.

Following visits to UP operations at Kansas City, Omaha, North Platte and Cheyenne, I wrote to Mr. Stoddard as follows:

"I am happy to state my short but valuable time here has been exceedingly informative and has enabled me to get the essential and best methods of operation. The warm reception and good treatment I received from you, your officers, and your workers, together with the friendly relations which exist between you and the authority of Iranian State Railways . . . made me feel that I was at home."

In a statement made at the completion of my American tour, I said, "I came here not only to obtain information to help my country's rail advancement, but also to become acquainted with your way of living and doing things here. . . .

"Among the things that impressed me most have been the excellent working conditions, the friendly human relations between officials and workers, and the high standard of living of everyone. I do not feel that many of the workers appreciate or even realize their good fortune and the privileges they enjoy. . . . During the entire time I have been in the United States, I have felt welcome because everyone I met or came in contact with was wonderful and very helpful. . . . However, I found the American people showing a kind of disinterest in world affairs. . . .

"The program was extremely informative and valuable, not only from the industrial point of view, but from the social and human standpoint. And I know that the information I have collected will prove to be of enormous value to me, to my fellow workers, and to my country as a whole."

MOHAMAD HOSSEIN GOLKAR
Technical Inspector
Iranian State Railways

NEW...
Bonus Powered
too!
INTERNATIONAL

NEW

124 Net Engine Horsepower. In International Drott Machines, Engine develops 134 Net Horsepower.

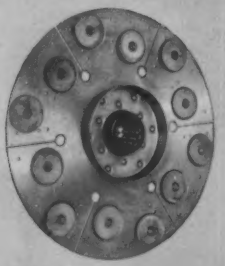
182 Series

TD 18

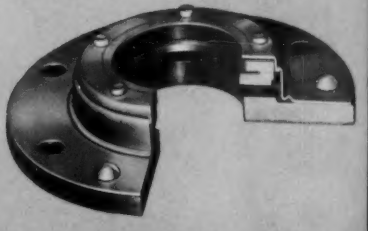
TD-18 diesel (series 182) delivers 103 drawbar horsepower, with weight of 29,050 pounds (without equipment). All-weather electric starting, standard equipment. "New look" visibility, operating ease never before available. New heavy-duty, swinging-door type radiator guard is "standard"—for carrying heavy front-mounted equipment. Gives big tractor performance in pioneering under roughest conditions. Powers 3-yard International Drott Skid-Shovel, anywhere.

No costly delay from a "killed" or cold engine—you start fast! Famous International *gasoline-conversion* diesel starting—*actual* "in-seat" starting—is *standard equipment* on this new crawler line. With "push-button" ease, you get seconds-fast starting, whether the engine is cold, or stopped! And you're on the job seconds-fast, when minutes are dollars.

Cerametallic Engine Clutch Facings Save power, defy heat, prolong life! Uncomplicated, *familiar-to-all* engine clutch design of these new crawlers have *power-holding, heat-defying, long-lasting* Cerametallic facings. These facings reduce lever-pull up to 50%, provide amazing heat immunity, add service freedom, cut upkeep!



Now . . . 500-hour lube intervals with new metal-to-metal, track roller seals! You save the time and expense of frequent inspections or lubrications, with the new *full-floating*, cartridge-type, track roller seals provided on the TD-24, TD-18, and TD-14. These precision-lapped, metal-to-metal seals are so effective they give you *safe* 500-hour intervals between roller lubrications!



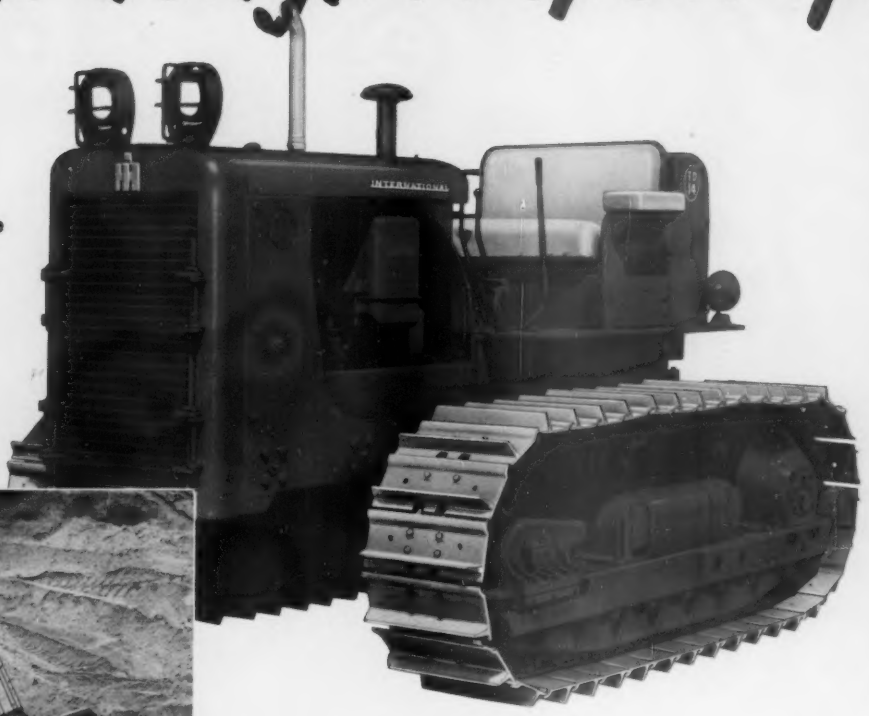
International® Crawlers gi

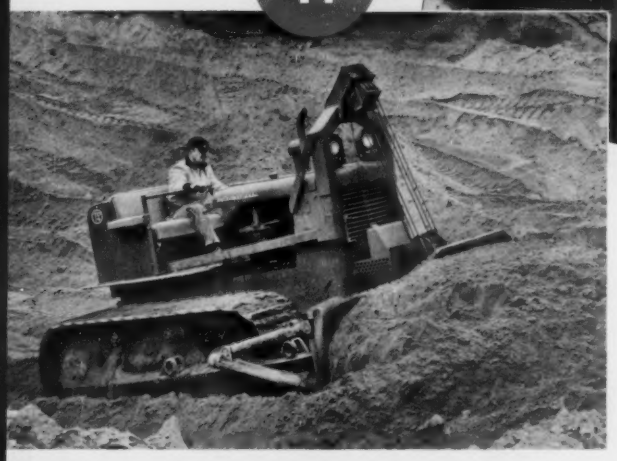
plus new design to speed yo

95 Net Engine Horsepower.

142 Series

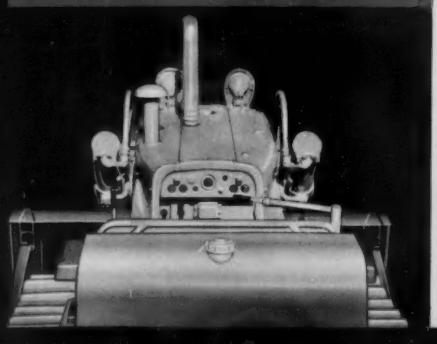
TD 14



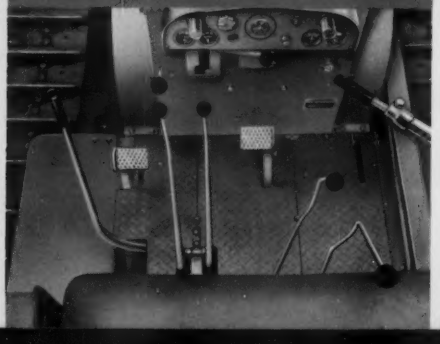


TD-14 (series 142), 78.5 drawbar hp; weighs 21,095 pounds (without equipment). Features "new look" engineering, job-speeding visibility, new equipment-carrying and operating strength. All-weather electric starting, standard equipment. It's a fast, responsive, big-capacity dozing tractor. Powers 2¼ cu. yd. International Drott Skid-Shovel or Four-In-One; 15-ton capacity Superior Pipe-Boom; other similar-sized equipment.

Control Tower Visibility adds operating efficiency! See how new International crawlers are streamlined for complete job-control visibility. Seat is amply high to provide full view of equipment, terrain, and variations requiring operator action, to maintain efficiency.



Clean, safe deck cleared for action! Look down on that safe, clean, flush deck—a platform for full production. The wide, man-size seat is fully-adjustable; foam rubber padded. Instruments centralized for one-glance check-up! Even a cigarette lighter is provided, to prevent needless stops!



Pressurized Closed Cooling System for Positive Performance Protection! New pressurized cooling systems provide fast warm-up under thermostatic control—and positive *ideal temperature control* with forced circulation through full-length jackets. That aids clean combustion, guards oil film strength, protects performance. Radiator core assembly is easily-removable, without disturbing radiator guard or mounted equipment.

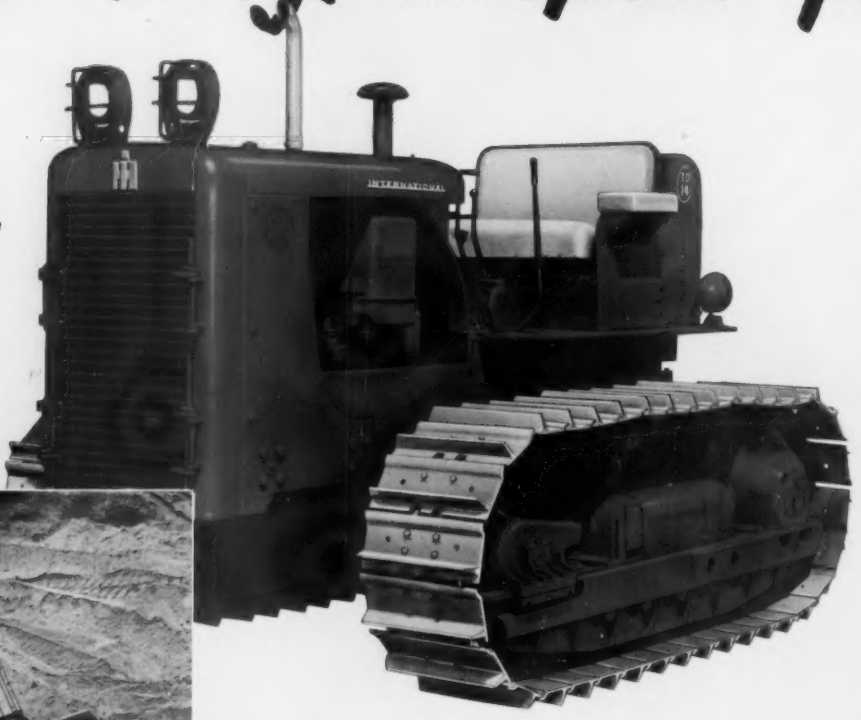
International® Crawlers giv

plus new design to speed yo

95 Net Engine Horsepower.

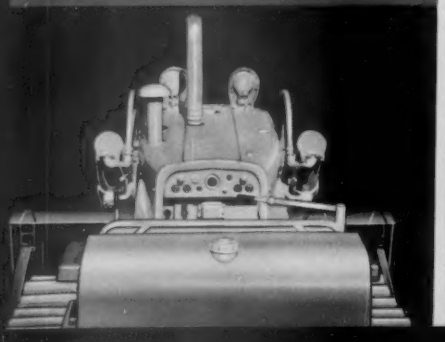
142 Series

TD 14

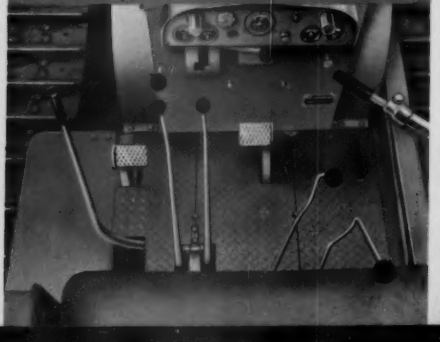


TD-14 (series 142), 78.5 drawbar hp; weighs 21,095 pounds (without equipment). Features "new look" engineering, job-speeding visibility, new equipment-carrying and operating strength. All-weather electric starting, standard equipment. It's a fast, responsive, big-capacity dozing tractor. Powers 2¼ cu. yd. International Drott Skid-Shovel or Four-In-One; 15-ton capacity Superior Pipe-Boom; other similar-sized equipment.

Control Tower Visibility adds operating efficiency! See how new International crawlers are streamlined for complete job-control visibility. Seat is amply high to provide full view of equipment, terrain, and variations requiring operator action, to maintain efficiency.



Clean, safe deck cleared for action! Look down on that safe, clean, flush deck—a platform for full production. The wide, man-size seat is fully-adjustable; foam rubber padded. Instruments centralized for one-glance check-up! Even a cigarette lighter is provided, to prevent needless stops!



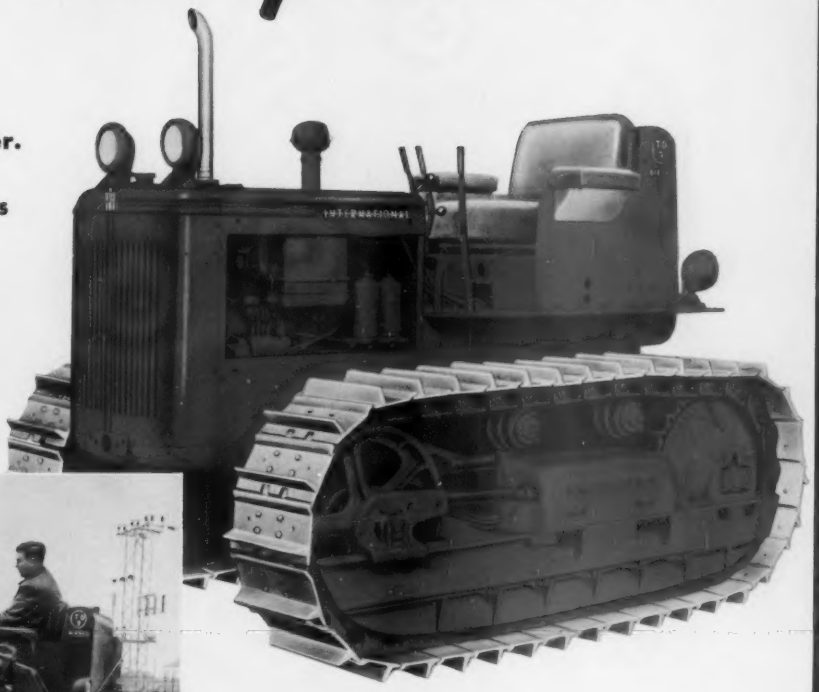
Pressurized Closed Cooling System for Positive Performance Protection! New pressurized cooling systems provide fast warm-up under thermostatic control—and positive *ideal temperature control* with forced circulation through full-length jackets. That aids clean combustion, guards oil film strength, protects performance. Radiator core assembly is easily-removable, without disturbing radiator guard or mounted equipment.

...give you Bonus horsepower—...your jobs, control your costs!

66 Net Engine Horsepower. In International Drott Machines, Engine develops 71 Net Horsepower.

91 Series

TD 9

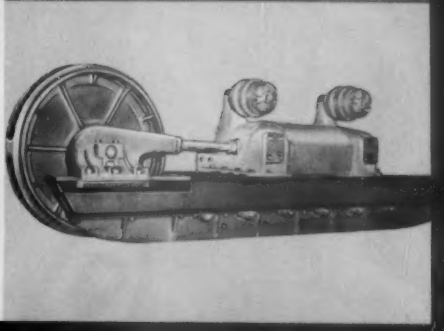


TD-9 diesel, (series 91), delivers 54.5 drawbar hp—up 32%. Operating weight (5-roller model), without equipment, 12,000 pounds. Now up in a new heavy-duty job range. New power is backed by new power train and track frame strength, new operating and servicing ease. Powers International Drott 1½ cu. yd. Skid-Shovel and other equipment requiring similar power.

480-hr. full-flow lube oil filters guard bearings, cut upkeep! Every drop of oil on its way to lubricate moving engine parts must pass through these new abrasive-trapping micron-type filters—with the capacity, strength, and efficiency to give 480 hours of wear-fighting, upkeep-cutting duty!

Hydraulic Power Steering Inspires Operator Cooperation! New hydraulic power steering of the TD-14 and TD-18 cuts operator fatigue—and along with the other big effort-saving advantages, makes it easier than ever to deliver full-capacity production! TD-6 and TD-9 have spring boosters to lighten the operator's job.

"Bridge-strong" track frames for "slam-bang" conditions! You are looking at the strongest track frame in the industry for crawlers of TD-18 and TD-14 size! Heavy steel box-section beams, weld-joined to heavy stress-relieved steel plates—and rigidly gusset-braced—they're your foundations for record-making "rough-and-tumble" performance!

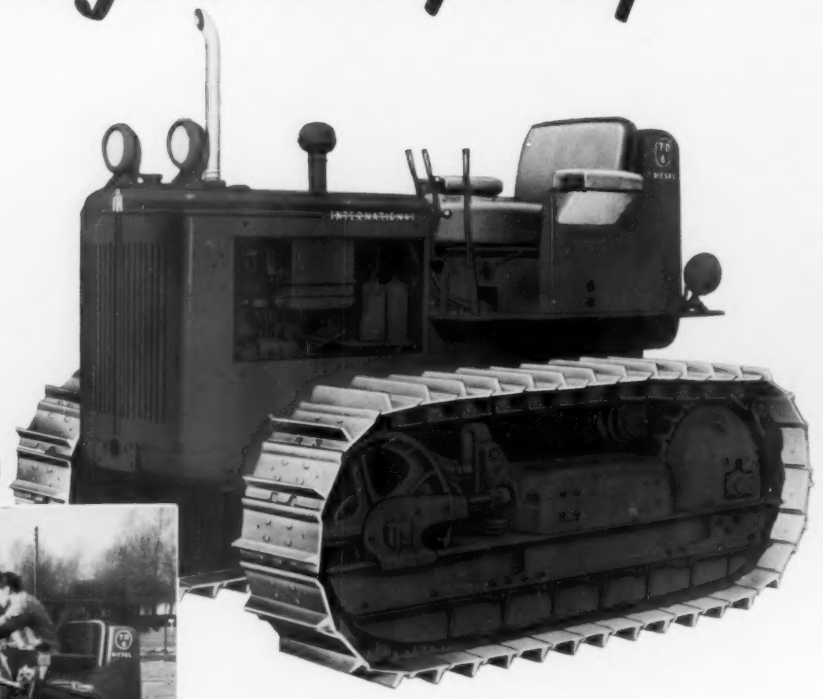


Steps up a size... in job range and capacity!

50 Net Engine Horsepower. In International Drott Machines, Engine develops 55 Net Horsepower.

61 Series

TD 6

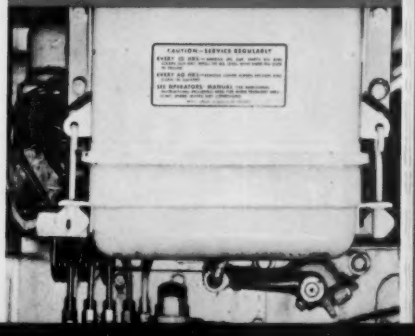


TD-6 diesel (series 61), 41.5 drawbar hp, up 23%! Steps up a whole size in work capacity and earning ability. Operating weight (5-roller model), without equipment, 8,890 pounds. Powers 1-yard International Drott Skid-Shovel or Four-In-One; serves as clean-up dozer unit on any-sized contract; versatility and low operating cost to do many sizes of jobs for every size of contractor.

Full-view, one-glance panel saves time—cuts effort! One quick glance at this new full-view panel, with centralized instrument grouping, gives the operator the instant check-up, to assure that lubrication, generator, and cooling system are "perking" for full production!

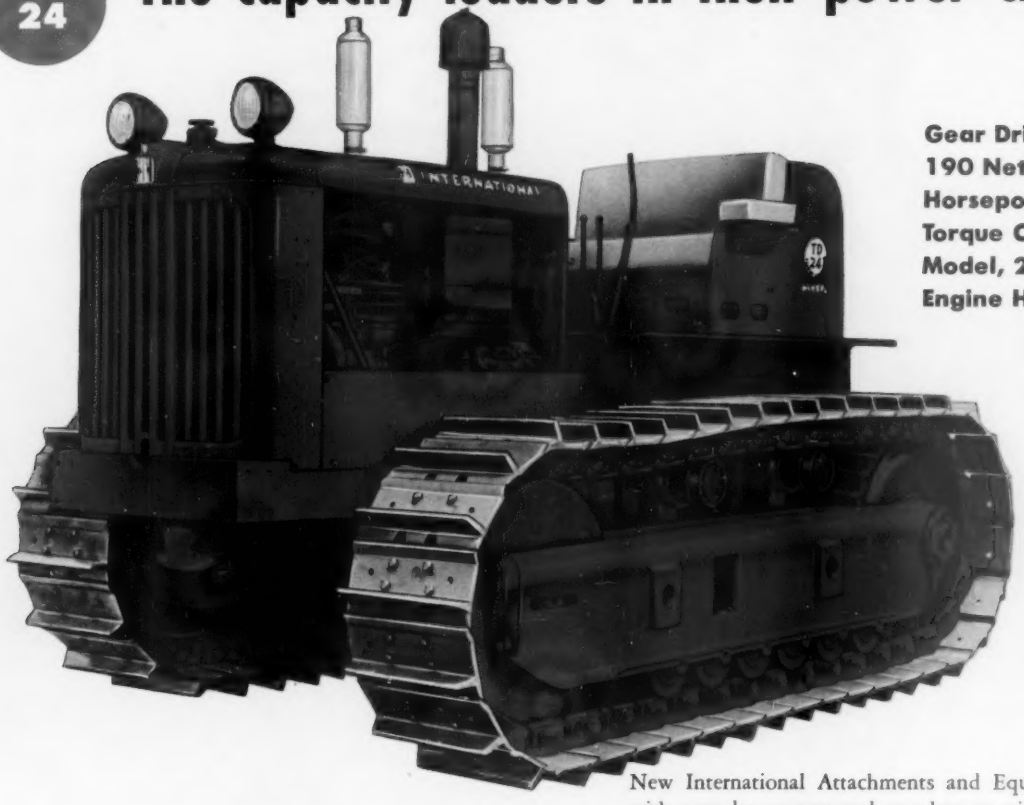
New Fold-over Seat Aids Fast, Centralized Servicing! New fold-over seat of the TD-6 and TD-9 models allows operator to give you the time and convenience advantages of centralized steering clutch assembly servicing. Lubricant fittings are conveniently grouped and fully accessible!

Thorough air filtration assured by new under-hood cleaner! Instead of being "in your lap," or a knee-bumping obstruction, air cleaners of the new International crawlers are side-mounted—for easy accessibility, yet out of the way. They have big capacity and high efficiency, too, for positive air filtration!



TD 24

The capacity leaders in their power class



Gear Drive Model, 190 Net Engine Horsepower
Torque Converter Model, 200 Net Engine Horsepower

Massive—with 43,080 pounds of rock-dozing, scraper-pushing brawn (7-roller torque converter model)*—the TD-24 can give them all a lesson in operating ease, big capacity, and positive load control! Has instant high-low range and exclusive Planet Power steering to give you its tremendous *pushing*, *pulling*, and *lifting* power on any terrain—with responsiveness not available elsewhere! *Live power on both tracks, on every turn!* Backed by equipment engineered to match its strength and power!

*Gear Drive 7-roller model weighs 42,780.

New International Attachments and Equipment team with new bonus-powered crawlers to give you high-producing performance packages: 42 new Bulldozers, to fit your needs exactly . . . 4 new Drott Loaders, 1 to 3-cubic yard capacity . . . 4 new Superior® Pipe-Booms, 8 to 55-ton capacity; 3 job-proved PCU'S! . . . **Measure . . . compare . . . prove to yourself . . . new bonus-powered International crawler tractors beat anything else on tracks! Try this turnpike-paced new power for capacity, operator preference, profit potential. Ask your International Industrial Power Distributor for a bonus-powered demonstration *to your specifications!***

INTERNATIONAL HARVESTER

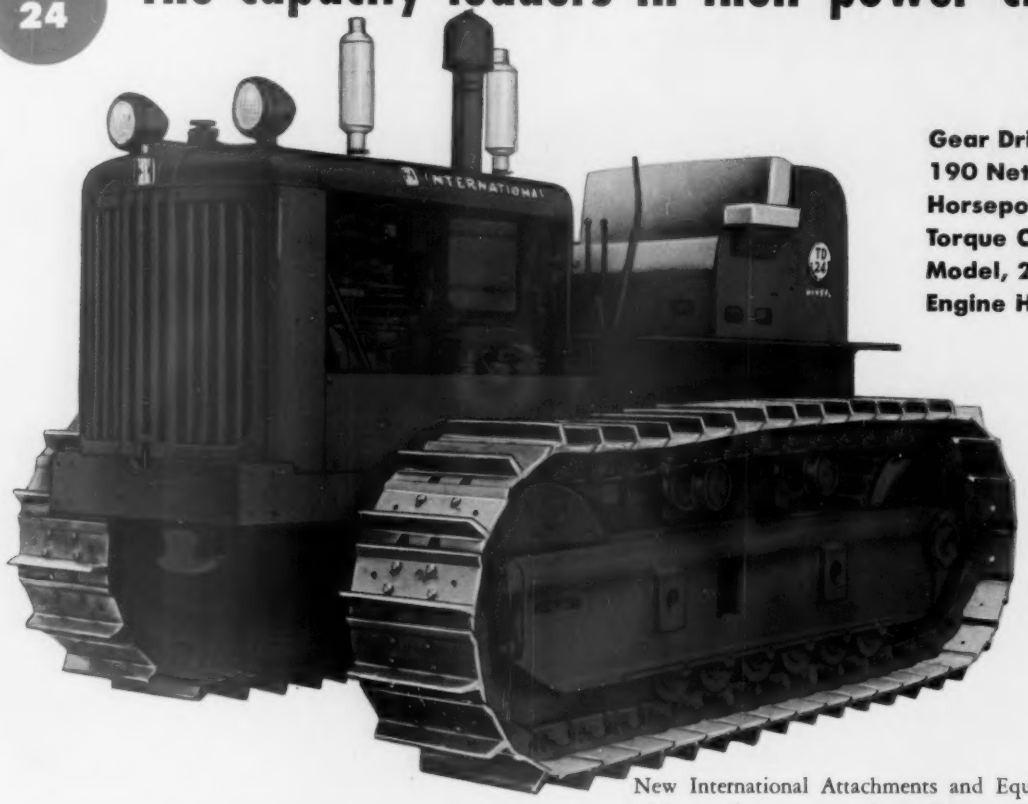
International Industrial Power

INTERNATIONAL HARVESTER COMPANY, 180 N. Michigan Ave., Chicago 1, Illinois

A COMPLETE POWER PACKAGE INCLUDING: Crawler, Wheel, and Pipe-Boom Tractors . . . Self-Propelled Scrapers and Bottom-Dumps . . . Tractor and Rubber-tired Loaders . . . Diesel and Carbureted Engines . . . Motor Trucks.

TD 24

The capacity leaders in their power class



Gear Drive Model, 190 Net Engine Horsepower
Torque Converter Model, 200 Net Engine Horsepower

Massive—with 43,080 pounds of rock-dozing, scraper-pushing brawn (7-roller torque converter model)*—the TD-24 can give them all a lesson in operating ease, big capacity, and positive load control! Has instant high-low range and exclusive Planet Power steering to give you its tremendous *pushing*, *pulling*, and *lifting* power on any terrain—with responsiveness not available elsewhere! *Live power on both tracks, on every turn!* Backed by equipment engineered to match its strength and power!

*Gear Drive 7-roller model weighs 42,780.

New International Attachments and Equipment team with new bonus-powered crawlers to give you high-producing performance packages: 42 new Bulldozers, to fit your needs exactly . . . 4 new Drott Loaders, 1 to 3-cubic yard capacity . . . 4 new Superior® Pipe-Booms, 8 to 55-ton capacity; 3 job-proved PCU'S! . . . **Measure . . . compare . . . prove to yourself . . . new bonus-powered International crawler tractors beat anything else on tracks! Try this turnpike-paced new power for capacity, operator preference, profit potential. Ask your International Industrial Power Distributor for a bonus-powered demonstration *to your specifications!***

INTERNATIONAL HARVESTER

International Industrial Power

INTERNATIONAL HARVESTER COMPANY, 180 N. Michigan Ave., Chicago 1, Illinois

A COMPLETE POWER PACKAGE INCLUDING: Crawler, Wheel, and Pipe-Boom Tractors . . . Self-Propelled Scrapers and Bottom-Dumps . . . Tractor and Rubber-tired Loaders . . . Diesel and Carbureted Engines . . . Motor Trucks.

When you think of

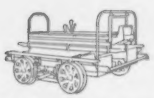
MAINTENANCE TRANSPORTATION

. . . think of

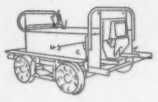
Fairmont

S2 SERIES AA STANDARD SECTION CAR is powered by a new two-cylinder, two-cycle, water-cooled engine. Features include a differential front axle, extension lift handles and four-wheel brakes. Load capacity: 8 men, 1800 lbs.

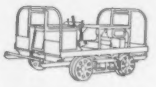
No more eloquent testimony could ever be offered on behalf of Fairmont quality than this simple fact: *Over half of the railway motor cars in service today bear the Fairmont name.* This impressive record of achievement has come about, first of all, through Fairmont's strict adherence to the highest standards of design and craftsmanship . . . and, secondly, through an unmatched record of performance in the field. Wherever Fairmont motor cars are on the job, they are adding still greater lustre to Fairmont's unique reputation for all the good things in maintenance transportation. High on the list of quality motor cars which Fairmont manufactures are the section and gang cars which you see here. Into each has gone the skill and experience of nearly fifty years . . . combined with the industry's latest developments in design and engineering. We invite you to study these matchless Fairmont products . . . and to contact us for further information. You will be glad that when you thought of maintenance transportation, you thought *first* of Fairmont!



M14 SERIES H LIGHT SECTION CAR can carry six men, yet can be operated by only two. Features include a steel frame, demountable wheels and a 5- to 8-horsepower engine. Load capacity: 6 men, 1200 lbs.

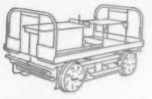


S2 SERIES H SECTION CAR offers unusual strength and performance. Features include a roller bearing engine, condenser cooling, extension lift handles, demountable wheels. Load capacity: 8 men, 1800 lbs.

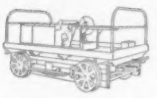


A3 SERIES D GANG CAR features a 17-h. p. engine, four-speed transmission and four-wheel braking. Adaptable as a heavy-duty section car. Economical in operation. Load capacity: 8 men, 2000 lbs.

A5 SERIES C GANG CAR can pull 6 trailers loaded with 120 men at 30 m.p.h. Features include a 31.5-h. p. engine and special construction. Four-speed, two-way operation. Load capacity: 8 men, 3000 lbs.



A6 SERIES F HEAVY-DUTY GANG CAR is expressly designed for heavy work. Features include a 100-h. p. engine; spring-mounted frame; four-speed, two-way operation. Load capacity: 10 men, 3500 lbs.



A8 SERIES B HEAVY-DUTY GANG CAR features a 140-h. p. V-8 engine, four-speed transmission, four-wheel drive and a hydraulic turntable. Makes an excellent hump car. Load capacity: 14 men, 4000 lbs.

FAIRMONT TRAILERS available for all Fairmont section and gang cars are designed for rugged service. Available in load capacities of 1,000, 2,000, 6,000 or 10,000 lbs. A very wide range of accessories is also offered.

FAIRMONT RAILWAY MOTORS, INC., FAIRMONT, MINNESOTA

MANUFACTURERS OF INSPECTION, SECTION AND GANG CARS, HY-RAIL CARS, MOTOR CAR ENGINES, PUSH CARS AND TRAILERS, WHEELS, AXLES AND BEARINGS, BALLAST MAINTENANCE CARS, DERRICK CARS, OIL SPRAY CARS, GROUTING OUTFITS, TIE RENEWAL EQUIPMENT, RAIL RENEWAL EQUIPMENT, WEED CONTROL EQUIPMENT.

The best cranks have an even disposition . . . including our Mr. Searns

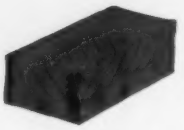
Since his first day as foreman of the O-P Crankshaft Machining Department, our Mr. Searns has been quite a crank—about crankshaft perfection. Through the years he has had a front-row seat in watching design improvements in the Fairbanks-Morse Opposed Piston engine.

One of the things our Mr. Searns is particular about is the accurate machining of the integral cast counterweights that reduce dynamic bearing loads . . . eliminate the problem of checking and maintaining attached counterweights in service.

Together with other advances in the O-P, this has eliminated "critical" bearings . . . reduced checking and maintenance.

As a matter of recorded fact, no comparable engine can equal the crankshaft, connecting rod and bearing life of the O-P.

This continuing research for better performance and longer life is an important part of Fairbanks-Morse's customer service and the basis for our constant product improvement—part by part. Fairbanks, Morse & Co., Chicago 5, Illinois.



Be sure you get the Dividend of Quality —specify genuine Fairbanks-Morse replacement parts. They are identified by the orange carton —and the Fairbanks-Morse Seal of Quality.

FAIRBANKS-MORSE

a name worth remembering when you want the BEST

DIESEL LOCOMOTIVES AND ENGINES • RAIL CARS AND RAILROAD EQUIPMENT • ELECTRICAL MACHINERY • PUMPS • SCALES • WATER SERVICE EQUIPMENT • MAGNETOS

This is the fourth in a series of advertisements about the people of Standard.

Western Traveler, U.S.A.

Meet Art Frank, Jr.

Like all real westerners, Arthur Frank, Jr. is a true outdoorsman who specializes in fishing.

Here at Standard he's Western Sales Manager and assistant vice president. He is responsible for the roads West of Chicago. It's his job to see that your order gets instant attention. Gets the kind of handling that has made so many friends for Standard Railway.

Now that you've met Art, remember him as your *specialist* in freight cars. It will pay you well, whether your order is for one car or a hundred, for parts for new cars or service on existing equipment.

Standard RAILWAY EQUIPMENT MANUFACTURING COMPANY

GENERAL OFFICE: 4527 Columbia Ave., Hammond, Ind. • New York • Chicago • St. Paul • San Francisco
Standard Railway Equipment Manufacturing Company, (Canada) Ltd., Sun Life Building, Montreal

MANUFACTURERS OF: Standard Improved Dreadnaught Ends — The Standard Diagonal Panel Roof — Standard Metal Floor Protectors — Standard Coupler Operating Device — Standard Positioning Device with Coupler Height Adjustment — and the Standard Wheel Truing Machine

USE BELL SYSTEM PRIVATE LINE TELETYPEWRITER SERVICE

Many railroads find that Bell System private line teletypewriter service gives them the fast, written communications they need in today's competitive market.

Teletypewriters are used for administrative control, freight car arrivals, dispatching, contacts with agents and in combination with punched cards and perforated tape for mechanized car reporting.

You can have a direct connection between two or more teletypewriters—across the street or across the nation. Messages typed on one machine are instantly reproduced on the other. You get *direct—fast—accurate—written—private —two-way* record communications.

Let a Bell System communications engineer make a detailed study of your communications. Such a survey may save you time and money. There's no obligation.

• ***Call your Bell Telephone Business Office***

BELL TELEPHONE SYSTEM

TELEPHONE TELETYPEWRITER TELEMETERING AND REMOTE CONTROL CHANNELS

For heavy duty passenger & freight Diesels...

For maintenance-of-way equipment...

For Diesel switching engines...

For Diesel construction equipment...

Whatever size Diesel engine...

ALWAYS SPECIFY ESSO DIESEL FUEL

You'll get the *right* fuel for your diesel equipment when you call on the expert technical advice of Esso sales engineers. Many years of experience analysing railroad needs, combined with scientific skill in the exact application of high-quality Esso Diesel Fuels, assures top performance for your diesels.

Every Esso Diesel Fuel is developed by constant research on the road and in the lab to meet a specific requirement. With outstanding coverage of bulk storage points in our area, the right grade is always available. You can rely on *all* Esso Railroad Products for the same high quality and dependable performance as famous Esso Diesel Fuels. For any fuel or lubricating problems, be sure to call on Esso.

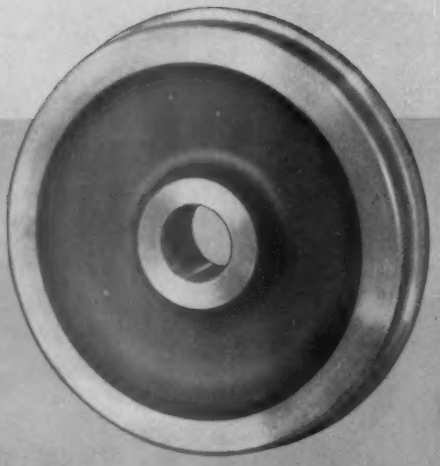
Esso

RAILROAD PRODUCTS

Esso Standard Oil Company,
Railroad Sales Division,
15 West 51st St., New York 19, N.Y.

all in a year's work! by Hungerford

We will be glad to send you enlarged copies of this Hungerford cartoon (without advertising copy) for posting on your office and shop bulletin boards, or a cut for your company magazine, at cost.



Edgewater

Rolled Steel Wheels

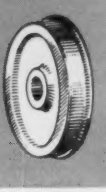
Edgewater Steel Company
PITTSBURGH, PA.

makers of

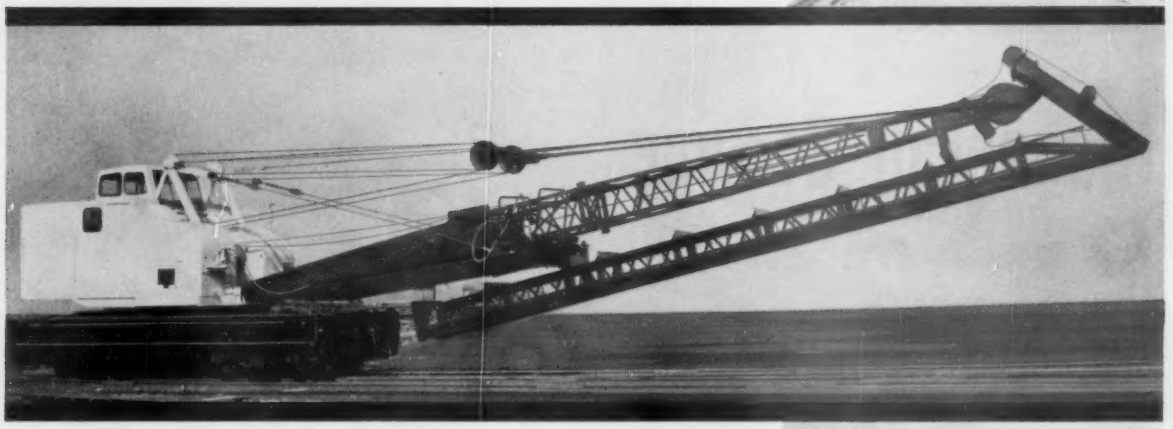
Draft Gears

Rolled Steel Tires

Rolled Steel Wheels



LATEST TYPE BROWNHOIST DIESEL ELECTRIC PILE DRIVER AT WORK FOR AMERICA'S RAILROADS



BROWNHOIST DIESEL ELECTRIC PILE DRIVERS HAVE THE SPEED TO GET OFF MAIN LINES QUICKLY, AND THE LONG LEADERS AND FULL CIRCLE ROTATION TO WORK IN ANY POSITION

Propelled by electric travel motors, these Industrial Brownhoist machines are capable of road speeds up to 18 miles per hour . . . they get on and off main lines in a hurry. Strut and leaders fold away for travel, allowing full railroad clearance, and they're quickly and easily fastened in upright position for battering. The Brownhoist rotates in a full circle, and its leader reach of 28′6″ from center of rotation gives it a wide working range. A large Diesel engine supplies the power for the heavy-duty Brownhoist machine. It has a maximum leader load of 26,000 pounds, and is equipped with power battering to sink piles as large or larger than that shown in the upper photograph. For further information about Diesel Electric Pile Drivers or other heavy-duty materials handling equipment, write today for your copy of the new Industrial Brownhoist catalog.

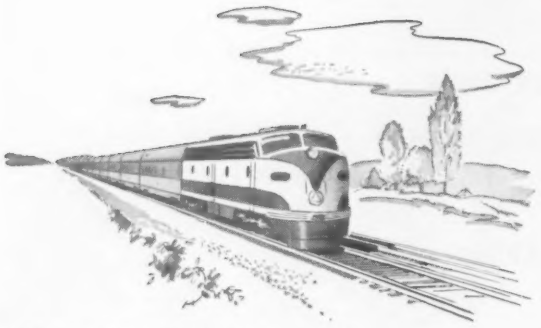
189

BROWNHOIST

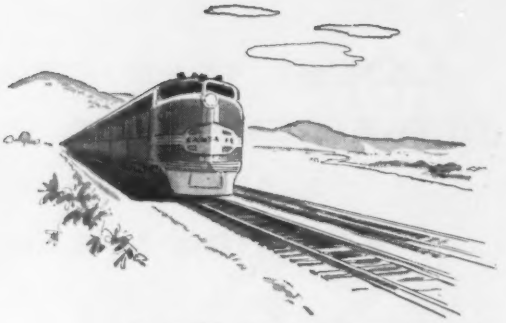
BROWNHOIST MATERIALS HANDLING EQUIPMENT GIVES A LIFT TO AMERICAN INDUSTRY

SUBSIDIARY OF Penn-Texas CORPORATION

INDUSTRIAL BROWNHOIST CORPORATION
BAY CITY, MICHIGAN • DISTRICT OFFICES: New York, Philadelphia, Cleveland, Chicago, San Francisco, Montreal
AGENCIES: Detroit, Birmingham, Houston



Richmond, Fredericksburg & Potomac's crack diesel outside Richmond, Virginia.



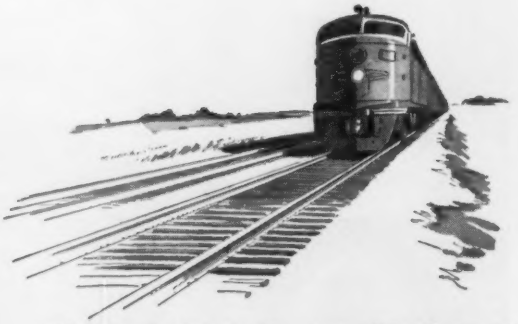
Santa Fe's "Chicagoan" eastbound between Cedar Point and Clements, Kansas.

Ribbonrail Service

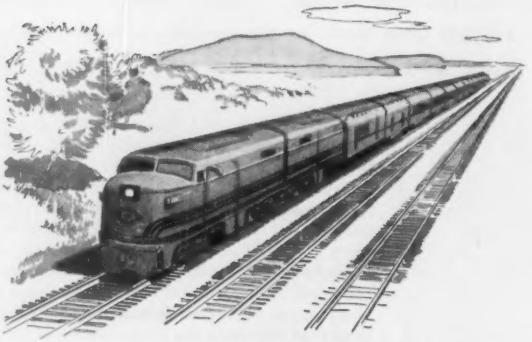
for open track high-speed traffic

Did you know that RIBBONRAIL Service is now producing miles of pressure-welded continuous rail for use in open main track? A few years ago continuous welded rail was used mostly in special locations such as bridges, station platforms, tunnels, and crossings. Cost-cutting performance of long rail in those locations prompted railroads to lay small "experimental" lengths in open track. These installations have proved their value. Now hundreds of miles of continuous rail — produced by RIBBONRAIL Service — are saving thousands of maintenance dollars for the railroads. Illustrated are just a few locations where RIBBONRAIL Service has made it possible for passenger and freight trains to glide smoothly over continuous rail many times a day.

Send for the booklet "Progress in Rail Pressure-Welding" for more information.



Chicago & North Western's "Gold Coast" between Missouri Valley and Council Bluffs, Iowa.



Lehigh Valley's "Black Diamond" at Royce, New Jersey.

RAILROAD DEPARTMENT
Linde Air Products Company
A Division of Union Carbide and Carbon Corporation
30 East 42nd Street UCC New York 17, N. Y.
Offices in Other Principal Cities
In Canada: LINDE AIR PRODUCTS COMPANY
Division of Union Carbide Canada Limited, Toronto

The term "Ribbonrail" is a service mark of Union Carbide and Carbon Corporation.

WABCO®
takes the punch and bounces back

Wabco's ability to bounce back and regain its original contour after deflection has made it amazingly successful in air brake packing cups, as well as seals and gaskets. It is this unmatched resiliency that has reduced brake system leakage to a previously unattainable minimum. It made it possible to extend maintenance intervals because of the longer service life.

To maintain top performance, be sure to use genuine Wabco parts. Specify them by name. Each Wabco Packing Cup carries the trade mark, date of manufacture, mold number and piece number. Thus you can order and get the same high quality parts time after time.

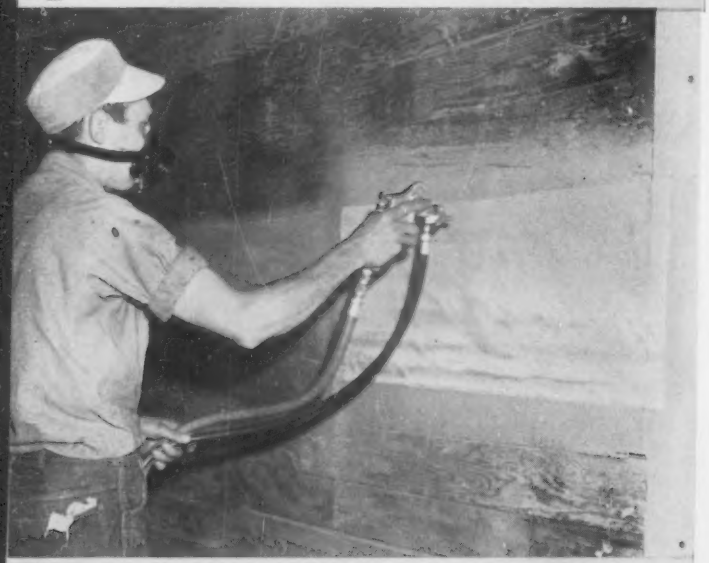
Westinghouse Air Brake
COMPANY
AIR BRAKE DIVISION WILMERDING, PENNA.

WABCO Dated Packing Cups

Now *Two* Men Can

Upgrade 30 Cars A Day!

1 Spray, brush or roll ADM Freight Liner Plastic on wood or metal areas to be patched. Freight Liner plastic is ready-to-use as it comes from the drum. Standard spray equipment can be used. No special surface preparation required.



2 Apply Freight Liner Fiberglas over the area to be patched while first coat of Freight Liner Plastic is still wet. Fiberglas can easily be cut with shears to desired size. Plastic plus reinforcing cloth gives a finished tensile strength of 1650 pounds per square inch.

3 Apply second Freight Liner Plastic coating to impregnate reinforcing Fiberglas. Coating air dries rapidly to tough, smooth, abrasion-resistant surface. Seals out dirt and insects. Where large broken areas require added strength, the coatings may be laminated in several layers.

Pick any two men in your yard crew! With an hour's training, they can upgrade 30 cars a day with the ADM Freight Liner System. They just follow three simple steps shown at the left.

In a matter of minutes this car was upgraded and ready for a bulk lading. Cost of labor and materials for spot patching was only 15 cents a square foot.

Whether you are patching or completely relining cars, the ADM Freight Liner System is fast, low cost and practical.

Apply at any location, in any weather.

In service for over a year, the ADM Freight Liner System not only upgrades cars faster but reduces both damage claims and per diem charges. Claims for sacks and packaged goods torn in transit are drastically reduced. Leakage of bulk shipments is controlled.

Qualified ADM service engineers provide everything needed to start your yard crew on an upgrading program. For an ADM Freight Liner System demonstration on your own cars at any track location, write, wire or phone (FEderal 3-2112 -Minneapolis) ADM Freight Liner System, 700 Investors Building, Minneapolis 2, Minnesota.

ADM

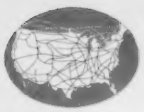
Freight Liner SYSTEM

Archer-Daniels-Midland company

Archer QUALITY

OTHER ADM PRODUCTS: Linseed, Soybean and Marine Oils, Paint Vehicles, Synthetic and Natural Resins, Polyesters, Fatty Acids and Alcohols, Hydrogenated Glycerides, Sperm Oil, Foundry Binders, Industrial Cereals, Vegetable Proteins, Wheat Flour, Dehydrated Alfalfa, Livestock and Poultry Feeds.

around the world 1⅓ times

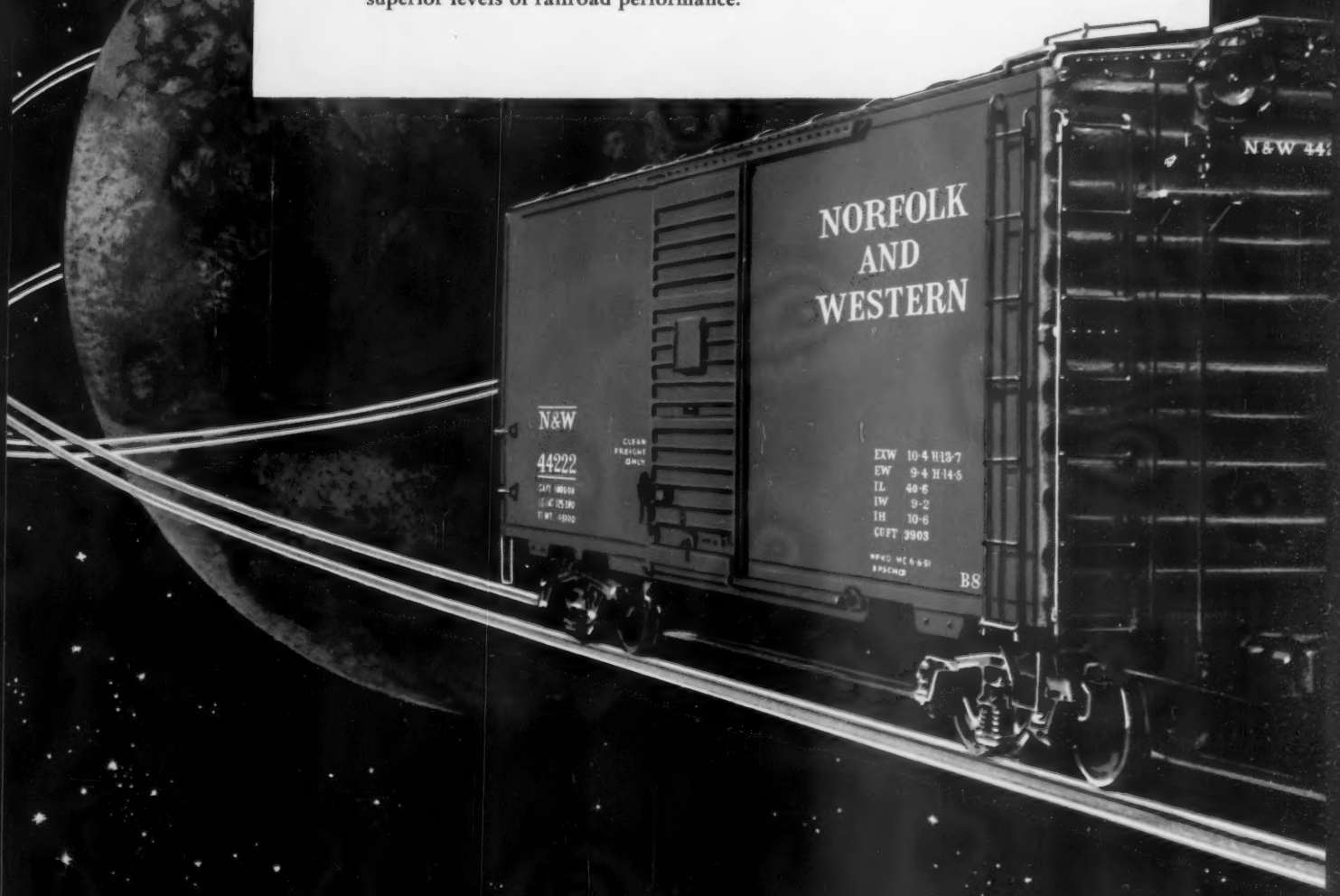


Norfolk and Western PS-1 Standardized Box Car journeys 33,000 miles over 45 roads in 19 months

The Norfolk and Western traced its PS-1 Box Car No. 44222 through 33,000 consecutive off-line miles which confirmed the value of its standardized design. Approximately 1⅓ times around the world, the miles No. 44222 rolled during this nineteen-month journey were divided among forty-five different railroads and terminal lines. Reaching all four United States borders and into Mexico, No. 44222 experienced all the hard general service demands of distance, weather, lading and diversified operating conditions that the Great American Railway System imposes on rolling stock.

Reports made to the Norfolk and Western indicated that No. 44222 gave satisfactory service during its trip and only minimum repairs were required when the car returned to the home line. Its performance is characteristic of the 69,433 PS-1s serving 72 different railroads.

An alert buyer of rolling stock, Norfolk and Western has ordered Standardized PS-1 Box Cars from Pullman-Standard six different times. These repeat orders confirm the value of standardization and contribute to the Norfolk and Western's continuing effort to provide shippers and consignees with superior levels of railroad performance.



the NORFOLK and WESTERN

Norfolk and Western PS-1 Standardized Box Car No. 44222 was built by Pullman-Standard in 1951. At the time of its 33,000 mile trip around the country, the car was a little less than two years old.

This simplified route map illustrates how N.&W. 44222 ranged the entire country, with a side trip into Mexico. It experienced all the conditions of the Great American Railway System.

MAINTENANCE

No. 44222's maintenance during its 33,000 mile trip proves PS-1 performance:

- **One journal bearing application**
- **One new air hose**
- **Journal boxes repacked**
- **Air brakes cleaned**
- **Minor "B" end straightening**
- **Minor replacement of interior lining**
- **Light-weighed in accordance with A.A.R. Service Rules**

relies on STANDARDIZATION

LOG OF N. & W. BOX CAR 44222, *From April 30, 1953 to December 3, 1954*

FROM	TO	DATE	MILEAGE
		1953	
Norfolk and Western	Western Maryland	May 1	319
Western Maryland	Reading	May 2	35
Reading	Central of New Jersey	May 2	132
Central of New Jersey	Wharton and Northern	May 11	115
Wharton and Northern	Central of New Jersey	May 14	Switch
Central of New Jersey	Reading	May 15	115
Reading	Western Maryland	May 17	132
Western Maryland	Baltimore and Ohio	May 17	55
Baltimore and Ohio	Terminal Railroad Association	May 20	795
Terminal Railroad Association	Missouri Pacific	May 20	Switch
Missouri Pacific	Union Pacific	June 4	279
Union Pacific	Missouri Pacific	June 9	Switch
Missouri Pacific	Gulf, Mobile & Ohio	June 19	279
Gulf, Mobile & Ohio	Southern	June 30	319
Southern	Baltimore and Ohio	July 6	556
Baltimore and Ohio	Erie	July 7	129
Erie	Baltimore and Ohio	July 18	196
Baltimore and Ohio	Southern	July 19	354
Southern	Central of Georgia	July 29	338
Central of Georgia	Georgia	July 29	134
Georgia	Seaboard Air Line	July 31	134
Seaboard Air Line	Richmond, Fredericksburg and Potomac	Aug. 2	505
Richmond, Fredericksburg and Potomac	Pennsylvania	Aug. 2	117
Pennsylvania	New York Central	Aug. 4	237
New York Central	Springfield Suburban	Sept. 4	803
Springfield Suburban	Detroit, Toledo and Ironton	Sept. 4	Switch
Detroit, Toledo and Ironton	Nickel Plate	Sept. 5	70
Nickel Plate	Missouri Pacific	Sept. 6	394
Missouri Pacific	Texas and Pacific	Sept. 7	493
Texas and Pacific	Gulf, Colorado and Santa Fe	Sept. 14	249
Gulf, Colorado and Santa Fe	Texas & New Orleans	Sept. 21	317
Texas & New Orleans	Frisco Lines	Oct. 9	264
Frisco Lines	International-Great Northern	Oct. 21	31
International-Great Northern	National Railways of Mexico	Oct. 29	325
National Railways of Mexico	Gulf Coast Lines	Nov. 14	380
Gulf Coast Lines	International-Great Northern	Nov. 19	372
International-Great Northern	Texas and Pacific	Nov. 20	232
Texas and Pacific	Missouri Pacific	Nov. 20	90
Missouri Pacific	Terminal Railroad Association	Nov. 26	493
Terminal Railroad Association	Pennsylvania	Nov. 27	Switch
Pennsylvania	Reading	Dec. 15	959
		1954	
Reading	Pennsylvania	Jan. 8	112
Pennsylvania	Illinois Central	Jan. 18	856
Illinois Central	Gulf, Mobile & Ohio	Jan. 26	192
Gulf, Mobile & Ohio	Elgin, Joliet and Eastern	Feb. 3	148
Elgin, Joliet and Eastern	Milwaukee Road	Feb. 4	59
Milwaukee Road	Duluth & Northeastern	Feb. 8	545
Duluth & Northeastern	Milwaukee Road	Feb. 9	Switch
Milwaukee Road	Northern Pacific	Feb. 11	Switch
Northern Pacific	Milwaukee Road	Feb. 14	236
Milwaukee Road	Kewaunee, Green Bay and Western	Feb. 22	863
Kewaunee, Green Bay and Western	Ann Arbor	Mar. 10	37
Ann Arbor	Baltimore and Ohio	Mar. 12	352
Baltimore and Ohio	Pennsylvania	Mar. 17	70
Pennsylvania	Illinois Central	April 2	548
Illinois Central	Texas & New Orleans	April 6	744
Texas & New Orleans	Missouri-Kansas-Texas	April 11	232
Missouri-Kansas-Texas	Texas & New Orleans	April 17	327
Texas & New Orleans	Southern Pacific	April 19	614
Southern Pacific	Union Pacific	May 13	2,088
Union Pacific	Chicago and North Western	May 16	990
Chicago and North Western	Soo Line	May 20	366
Soo Line	Baltimore and Ohio Chicago Terminal	June 2	449
Baltimore and Ohio Chicago Terminal	Baltimore and Ohio	June 2	Switch
Baltimore and Ohio	Pennsylvania	June 8	471
Pennsylvania	Alton and Southern	June 12	611
Alton and Southern	Litchfield and Madison	June 12	10
Litchfield and Madison	Chicago and North Western	June 13	59
Chicago and North Western	Union Pacific	June 16	567
Union Pacific	Illinois Central	July 16	3,934
Illinois Central	Central of Georgia	July 18	1,211
Central of Georgia	Southern	July 31	252
Southern	Atlanta and West Point	Aug. 5	88
Atlanta and West Point	Georgia	Aug. 16	174
Georgia	Southern	Aug. 19	202
Southern	Missouri Pacific	Sept. 4	551
Missouri Pacific	Southern	Oct. 7	330
Southern	Pennsylvania	Oct. 24	446
Pennsylvania	New Haven	Oct. 26	777
New Haven	Lehigh and Hudson River	Nov. 6	480
Lehigh and Hudson River	Central of New Jersey	Nov. 6	86
Central of New Jersey	Reading	Nov. 6	17
Reading	Western Maryland	Nov. 7	132
Western Maryland	Baltimore and Ohio	Nov. 7	391
Baltimore and Ohio	Southern	Nov. 9	239
Southern	Florida East Coast	Nov. 24	783
Florida East Coast	Atlantic Coast Line	Nov. 30	732
Atlantic Coast Line	Norfolk and Western	Dec. 3	653
Total Mileage Between Interchange Points			**33,154**

NORFOLK AND WESTERN 44222, a PS-1 Standardized Box Car, was built by Pullman-Standard in 1951 and began its nineteen month, 582 day trip in 1953. It is still in active N.&W. service and reported to be in excellent condition.

The range of its recorded journey was typical, as were its remarkably low maintenance requirements. PS-1 dependability, under all the hard-service conditions of the Great American Railway System, is a major reason for its acceptance.

Norfolk and Western 44222 is representative of the 3000 PS-1s this progressive railroad has ordered from Pullman-Standard on six separate occasions. And it is typical of the 69,433 PS-1s put in service by 72 standardization-conscious roads.

Pullman-Standard first introduced the concept of freight car standardization to the railroad industry in 1946. With 1956 marking the tenth anniversary of this event, the roads of the Great American Railway System have demonstrated their acceptance by ordering more than 100,000 P-S standardized cars of all types. In addition to the PS-1 Box Car, Pullman-Standard's line of standardized freight cars now includes the PS-2 Covered Hopper, PS-3 Open Top Hopper and PS-4 Flat Car. Each of these four cars is engineered, tested, crafted and mass produced for maximum service, with minimum first cost and maintenance. And each is sufficiently flexible in design to permit adaptation to individual railroad requirements.

Whatever your freight car needs may be, equipment built by the nation's leading car-builder will provide the superior performance users expect, and get, from Pullman-Standard products.

BUILT TO SERVE BEST ON THE

GREAT AMERICAN RAILWAY System

BY PULLMAN-STANDARD

WORLD'S LARGEST MANUFACTURER OF PASSENGER AND FREIGHT CARS

PULLMAN-STANDARD

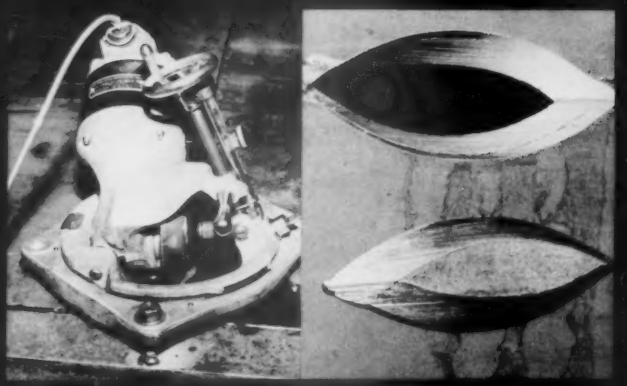
CAR MANUFACTURING COMPANY

SUBSIDIARY OF PULLMAN INCORPORATED

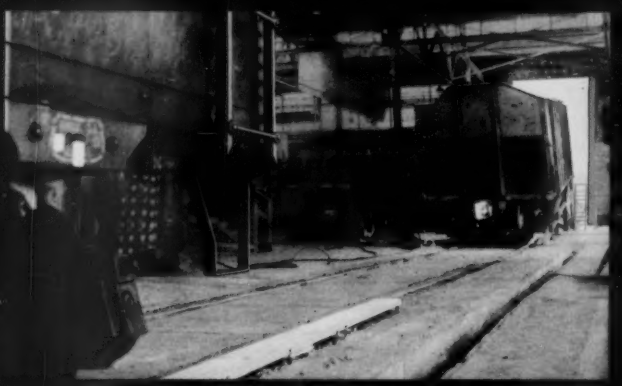
79 EAST ADAMS STREET, CHICAGO 3, ILLINOIS

BIRMINGHAM, PITTSBURGH, NEW YORK, SAN FRANCISCO, WASHINGTON

standardization allows full use of modern production facilities



Pace setter in welding, Pullman-Standard uses special probers to sample welds and prove penetration. Exclusively P-S automatic welding machines supplement precision down-hand welding and insure structural durability.

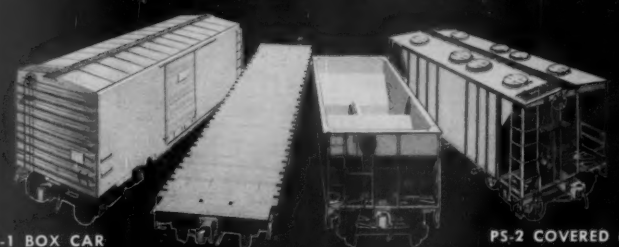


Pullman-Standard's huge R&D Laboratory puts cars, materials and procedures through continuous and intensive testing. R&D findings are carefully evaluated for every possible means of making already superior cars even better.

P-S has a tremendous investment in dies, jigs and fixtures which enhance precision craftsmanship, full use of mass production techniques and the principles of automation. This means cars that serve better, last longer.

Standardized P-S Freight cars are followed into the field by trained and highly critical Field Service Engineers. P-S cars and others are carefully inspected and factually reported on. Findings are analyzed for clues to improvements.

Built to serve best on the
GREAT AMERICAN RAILWAY SYSTEM



PS-1 BOX CAR
PS-4 FLAT CAR
PS-3 HOPPER CAR
PS-2 COVERED HOPPER

WORLD'S LARGEST MANUFACTURER OF PASSENGER AND FREIGHT CARS

PULLMAN-STANDARD

CAR MANUFACTURING COMPANY
SUBSIDIARY OF PULLMAN INCORPORATED
79 EAST ADAMS STREET, CHICAGO 3, ILLINOIS
BIRMINGHAM, PITTSBURGH, NEW YORK, SAN FRANCISCO, WASHINGTON

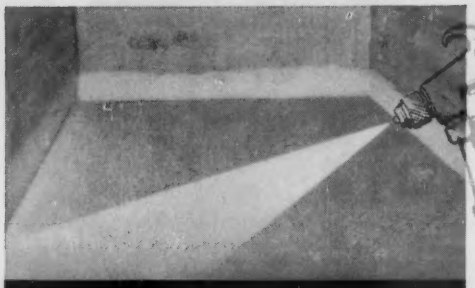
Upgrade any box car interior

QUICKLY, ECONOMICALLY

with ARMORTEX

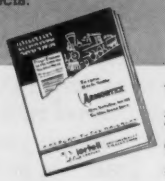
a tough, permanent plastic car liner

BEFORE AFTER



Exclusive ARMORTEX Process Eliminates Use of Expensive Mesh or Glass Fabrics

- **SMOOTH, TOUGH SURFACE—EASILY SWEPT OR WASHED OUT**
- **ADHERENT**—a mastic which bonds to surface. Not a strippable material
- **FLEXIBLE**—tough, but not brittle. ⅛" film will bend around 1" mandrel
- **SOLVENT RESISTANT**—unaffected by mineral spirits, water or gasoline. Wood color of film will not stain or discolor
- **NON-HAZARDOUS**—an oil-in-water emulsion. Presents no fire hazard in storage or application.
- **INSECT RESISTANT**—made of synthetic resin and mineral fillers—absolutely impervious to insects.



Write today for free illustrated booklet giving full details on Armortex.

JW Mortell COMPANY
511 BURCH STREET
KANKAKEE, ILLINOIS

Serving American Railroads Since 1895

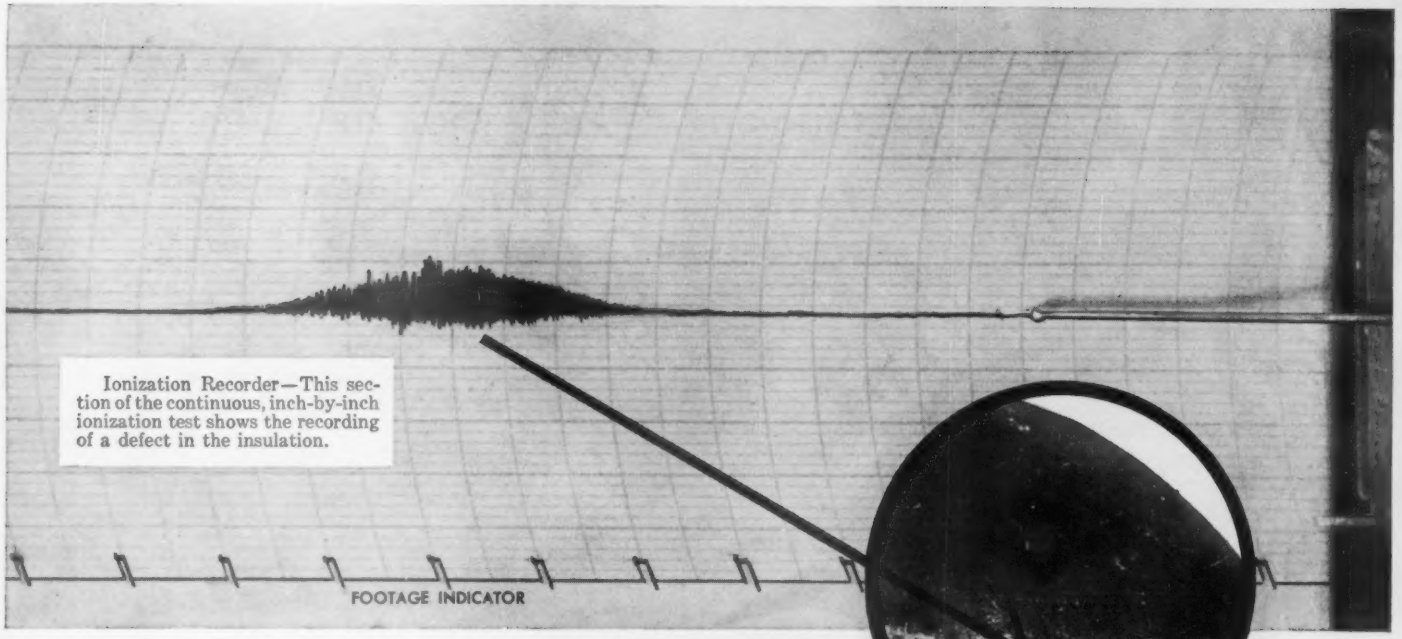
Compare Costs, Materials and Application with Any Other Process

Here's really big news the whole railroad industry has been waiting for! Now, for the first time, it is possible to apply a quick, economical protective coating to box car floors and walls which insures the *permanent*, superior surface needed for shipment of high grade bulk commodities such as grits, flour, sugar and grain.

Armortex, an amazing new discovery of the J. W. Mortell Railroad Division, completely eliminates the costly preparation of cars for individual loadings. Internal car surfaces coated with Armortex no longer splinter or deteriorate under normal operating conditions...thus resulting in a reduction of claims due to leakage, infestations, package damage.

Still another big advantage of new Armortex is its ease of application. One man can cover a box car floor in less than 30 minutes...readying the car for service the next day. By spraying, brushing or troweling, Armortex can be applied at any shop, rip-track or siding without returning the car to a central maintenance location.

Armortex is also available in Caulking Grade for sealing in large cracks and gouged-out surfaces in lining, doorposts, etc.



Ionization Recorder—This section of the continuous, inch-by-inch ionization test shows the recording of a defect in the insulation.

This void was detected by the "Gooding Test Train" ionization test. It was *not* detected by any of the industry's standard test procedures.

New Testing Procedure developed by Okonite

"Gooding Test Train" detects flaws in insulated power cable (4kv and over) heretofore unrevealed by standard tests

The "Gooding Test Train" has significant value to cable users. This new system of *non-destructive* testing, developed and used only by Okonite, reveals imperfections which are frequently not detected by ordinary testing procedures. Some of them even slip by Okonite's super-voltage a-c and d-c tests (highest used in the industry) and "full reel" corona tests.

The "Gooding Test Train" consists of a series of three test sets. The entire length of cable passes consecutively through each set as follows:

SCHEMATIC DRAWING OF GOODING TEST TRAIN

1. Uniformity Test—A uniformity gauge continuously checks insulation thickness—locating any thin spots which might cause premature failure.

2. Ionization Test—This is the most important unit of the "Gooding Test Train". It can measure the corona level at any spot along the cable. Procedure is to test the cable *inch-by-inch* at a predetermined voltage which is sufficient to assure the user that the corona level is at least 1½ times the rated voltage. Voids and imperfections as small as a grain of sand have thus been identified and removed.

3. X-Ray Test—X-ray inspection of the cable is performed by a 250,000 volt X-ray machine. This determines the nature and extent of any of the flaws indicated above.

By such intensive testing, it is possible to eliminate previously unidentified imperfections that might otherwise lead to premature failure. Studies of such defects also help to identify the cause and permit preventive measures. The "Gooding Test Train" is now being used to test all Okonite's rubber-insulated cables rated at more than 4000 volts. It is a long step towards securing the "perfect cable" and, as such, of tremendous benefit to cable users.

For detailed information about Okonite's G.T.T. write for new Bulletin RA 1100, to The Okonite Company, Passaic, N. J.

3804

OKONITE insulated cables

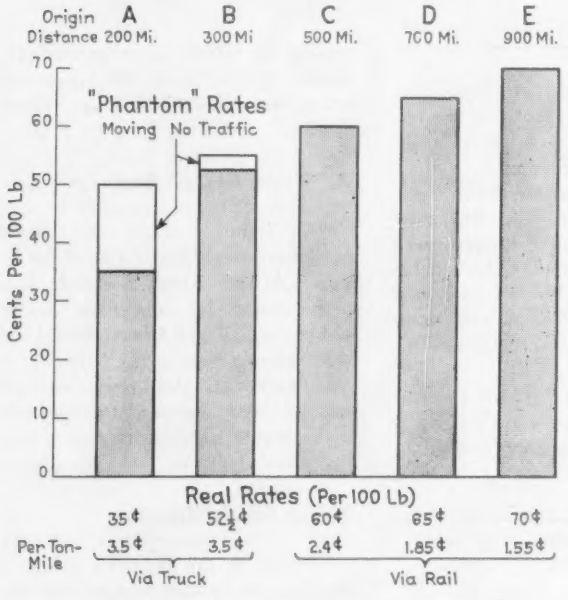
OKONITE SINCE 1878

Protect Whose Earnings—Railroads' or Patrons'?

There are few railroad policy problems which are more important or harder to resolve than that of preserving relationships between rates in a way to enable a railroad's customers to stay in business—while, at the same time, favoring the growth of railroad traffic and earnings.

The nature of the traffic and earnings problem may be set forth by a fictional and oversimplified (but nevertheless typical) example. Suppose that there is a large market in Chicago for a commodity we may call gussets and that the main sources of supply are at A (200 miles from Chicago); B (300 miles); C (500 miles); D (700 miles); and E (900 miles). Suppose, further, that a railroad rate differential of 5 cents, B above A, C above B, and so on, has been long established.

The situation is shown graphically in the accompanying chart. It will be noted that the tops of the bars which represent the rates from A and B to Chicago are shown



only in outline. The reason is that the railroad rate of 50 cents from A and 55 cents from B are "phantoms"—they no longer move any traffic. Truck transportation is available on a return-load basis at both A and B and is taking gussets at both points for Chicago at a charge of 3.5 cents per ton-mile. This figures out at 35 cents per 100 lb for the 200-mile haul from A and at 52½ cents per 100 lb for the 300-mile haul from B.

Since both of these charges are below the standard railroad charges of 50 cents and 55 cents, the trucks have taken all of the gusset tonnage at A and B. They have not taken any of the traffic from C, D and E, however, because the railroad rates from those points figure out, respectively, at 2.4 cents, 1.85 cents, and 1.55 cents per ton-mile. Such rates are lower than truck costs, so the railroads retain all the business from these three points of origin.

The historic differentials between rates into Chicago have been destroyed. B is now actually paying a rate 17.5 cents higher than A—not 5 cents as heretofore. C pays 7.5 cents more than B. D still pays only 5 cents more than C, and E only 5 cents more than D.

There are three courses of action open to the railroads in such a situation. They can:

1. *Keep the Phantom Rates Intact.*—That is, the railroads can rest content with the present traffic and rate pattern, allowing the trucks to keep all the A and B traffic (although, since these origins now enjoy much lower rates, relatively, than C, D and E, it is quite likely that they will produce a growing share of the tonnage and C, D and E a declining share).

2. *Destroy the Phantoms.*—That is, if railroad costs are low enough to offer, at a profit, the rate of 35 cents to A and 52½ cents to B, then the railroads can ignore the traditional differentials of 5 cents B over A, 5 cents C over B and so on—and recognize differentials that truck competition has enforced (i.e., the rates shown by the shaded portions of the bars in the accompanying chart).

3. *Make the Rate Structure Too Low for Phantoms to Exist.*—In adopting this procedure, the railroads would meet the competition of trucks by charging A 35 cents, and would apply the traditional differentials of 5 cents thereafter. That is, B would pay 40 cents, C 45 cents, D 50 cents, and E 55 cents. These rates would yield 3.5 cents per ton-mile on traffic from A, 2.66 cents from B, 1.8 cents from C, 1.43 cents from D, and 1.22 cents from E. Whether the railroads would make any money, charging such low rates from points D and E, is a question.

The railroads, in point of fact, do not give uniform answers to this rate-relationship problem. They answer it in different ways on different occasions. Hard thinking and hard figuring would undoubtedly indicate that there are not three correct answers to this problem, but only one.

If any of our readers can offer proof as to which of the three answers is (at least usually) the correct one, we'd be mighty happy to print such an analysis. Finding and applying the right answer—instead of just guessing at it, often erroneously—would mean hundreds of millions of dollars to the railroad industry.

Courtesy Transport Topics

Creed of the country's second largest and fastest growing truck operator: "The only way we can get the equipment we want—which is largely custom-made to our specifications—is to own it ourselves."

Inside Stuff on Trucking

Pacific Intermountain Express is running neck and neck with Associated Transport for the title—largest truck line in the United States. Including the revenues of companies it is in process of acquiring, PIE's annual gross runs about $50 million.

Philip H. Small, PIE vice-president—finance, and a security analyst by profession, has given the Boston Society of Security Analysts a detailed rundown of PIE's plans and management principles, and his opinion on the reasons for its success. Certain of these disclosures ought to interest railroad men—not only as useful facts about a major competitor, but as well as an outlook on the transportation business which is, in some respects, unorthodox.

The chief value of Mr. Small's observations, of course, is that they come from an officer of a highly successful, rapidly expanding transportation enterprise. In 1945 PIE had gross revenues of $4.2 million a year, compared with its present $50 million take.

In Mr. Small's own words, excerpts from his comments on truck-line operation and the business of transportation appear below.

THE CLIMATE FOR TRUCKING

"The PIE system as now constituted did about 1.1 billion ton-miles in 1954. This consisted of about 2½% of the Class I intercity common carrier of general freight ton-miles, plus about 3% of the intercity petroleum hauling common and contract carrier ton-miles. This PIE total of 1.1 billion ton-miles was only about ½ of 1% of total intercity truck ton-miles, including private carrier."

A "Grass Roots" Business

"An industry where the largest producer is only ½ of 1% of the industry is very widely diffused. It is very strong in grass-roots voting power, but difficult to coordinate and consequently weak, up to now, in the organized lobbying strength which has become increasingly necessary to survival in this 'political' economy."

Trend Favors Trucking

"Where is the industry going in relation to its competitors and the national economy? The trucking industry should account for an increasing share of the gross national product for these reasons:

"As the standard of living has been growing, the American con-

Says Pacific Intermountain Express: "If our equipment lasted as long as that of some of our competition, we might still be driving 1930 trucks around the streets."

sumer has been spending his dollars for more highly fabricated articles, even including foodstuffs. We buy instant coffee instead of coffee beans, cake-mix and Bisquick instead of flour. . . .

"The more fabricated things become, the more valuable they become per pound and per cubic foot, the more they need and can afford to pay for careful handling and rapid transportation, and the smaller the size of shipment in which they tend to move. . . .

"This trend to higher fabrication and the trend to automation both mean specialized pools of highly skilled labor and a concentration of production. This means more transportation of the finished product, and the higher unit value of the product encourages minimizing inventory investment by faster movement in smaller lots."

Off-Track Customers

"The current building boom, both industrial and residential, is moving large numbers of producers and consumers to locations that are served only by truck. The result of that in previous decades is evident in the West, which grew up *after* the railroads, instead of *before* them. In California . . . for-hire trucking revenue is four times the railway revenue."

Mergers and Consolidations

"The merger climate is favorable down in Washington, much more favorable than when we got slapped down on our Keeshin acquisition application five years ago.

"The resistance is less. Most of the expanding truck lines have decided that it is an unnecessary waste of time and money to oppose a competitor's merger application if the competitor will also get the idea. And many of the railroads have come to the conclusion that it would be better to have a few strong law-abiding truck lines to compete with, than to cope with the ICC's financial inability to keep 2,000 little ones in line."

TIPS ON RUNNING TRUCKS

"The longer average haul seems to be more profitable. The longer the haul the lower ratio of payroll to gross revenues, because most of the work has to be done at origin and destination.

"Also, in truck freight, the longer the haul the more valuable the freight and the higher the average rate—which figure raises the average rate per ton. The PIE average haul in 1954 was nearly 1,500 miles."

Seek the Long Haul

"PIE runs its schedules round the clock, seven days a week, equally spaced throughout the 24 hours. This is not feasible in a short haul overnight operation. . . . PIE put an average of 170,000 miles on its line-haul power units last year. The industry average on intercity power is about 52,000 miles."

Own—Don't Lease

"In 1954 a group of 2,600 Class I truckers ran 42% of its miles with leased equipment. The same group had a composite operating ratio of 96.9%.

"In contrast, PIE—which believes in owning its own equipment—ran only 1.4% of line-haul miles with leased equipment. PIE's operating

ratio was 90.1%. Why does PIE behave this way?

"The only way we can get the equipment we want—which is largely custom-made to our specifications—is to own it ourselves.

"You cannot get as high utilization out of power you lease as power you own. The lease operator drives the power unit himself or he wants only one man to drive it. If the power unit is limited to one-shift operation, the utilization is obviously low."

Custom-Built Equipment

"One important reason for the variation in financial results [i.e., between PIE and the trucking industry as a whole] is variation in *efficiency of the equipment employed.*

"The most important ratio in maximizing our profit is revenue per line-haul mile. Line-haul expense is a high proportion of total costs in a long-haul operation like ours. With a given tractor and semitrailer, running cost per mile varies surprisingly little as between running 31,000 pounds empty and 72,000 pounds with maximum load.

"Our 35-ft line-haul semitrailers [as of June 1954] had an average capacity of around 1,860 cu ft. Our president conceived what is now being sold as the 'high-cube' van trailer and took the idea to Fruehauf and two smaller manufacturers. We replaced *our entire fleet* of both dry and refrigerated vans with new ones of 18% more cube, the dry vans having 2,200 cu ft capacity.

"As a result, our revenue per mile this year is running well ahead of last year, notwithstanding the fact that our rates are averaging somewhat lower. Still, there are truck lines of substantial size, operating in our western territory, whose trailers have an average cube well below our old 1,860 cubic feet.

"It naturally follows that they are not making very much money."

Cube More Important

"This question of cubic capacity has become more important to us than weight limits. With the increased use of aluminum and plastic and the higher degree of fabrication, the freight is getting lighter per cubic foot every year. It averaged 18 lb a few years ago. Now it is 12½ lb, and, out of a really 'light' manufacturing area like Los Angeles, it can run 10 lb."

High Depreciation Operation

"[Despite the apparently dangerous ratio of debt to earnings] . . . the truckers are not going broke. At least, not in droves. The answer is that the rolling stock is turned almost like a manufacturer's inventory. Trucking equipment wears out fast. These same 2,600 truckers took $173 million depreciation last year, and had $714 million net carrier operating property at the end of the year. That is about four-year depreciation against assets that do include some land and buildings and a fair amount of salvage value. And it isn't so hard to pay off $100 million of equipment debt a year if you are taking and making $173 million depreciation.

"It is a good thing that trucking equipment depreciates rapidly. This permits newer and more efficient equipment to get into service promptly. **If our equipment lasted as long as that of some of our competition, we might still be driving 1930 trucks around the streets."**

LCL Business

"The less-truckload business is profitable to the truck line that has it in large volume and has the set-up and know-how for handling it."

Controlling Expenses

"If business is down, you run fewer trucks and maintain your load factor. You don't take the decline in the load factor.

"In PIE we have accumulated a certain amount of information on work units per man hour, with no special purpose in mind, to guide us in cutting—when, and if, we have to cut. When a systemwide strike ties us up, we lay off everybody but the supervisors—and we put them on half-pay."

Trucks vs. Rivals in a Decline

"If there is a decline in the overall economy, I am inclined to think the trucks will retain their share of total freight volume and price increase, as they have on the minor dips so far. Hand-to-mouth buying means smaller shipments—and that means 'truck'.

"The transportation form that can control its cost better, can maintain the quality of its service better, and offer a more competitive service, can cut costs only at the expense of quality."

Research and Development

"We believe in close control of our operation as well as our service, and for the last five or six years have been running a constant sampling check of three shipments per thousand on our transit time from shipper to consignee. We put a good deal of effort and thought into research and development and try to maintain the truth of what a number of people have said: 'The most modern and efficient equipment on the highway is whatever PIE is currently using'."

Time vs. Miles

"Many of our equipment costs (such as carrying charges, annual license fees, painting, and certain other maintenance items) seem to run with *time* and not with *miles.*"

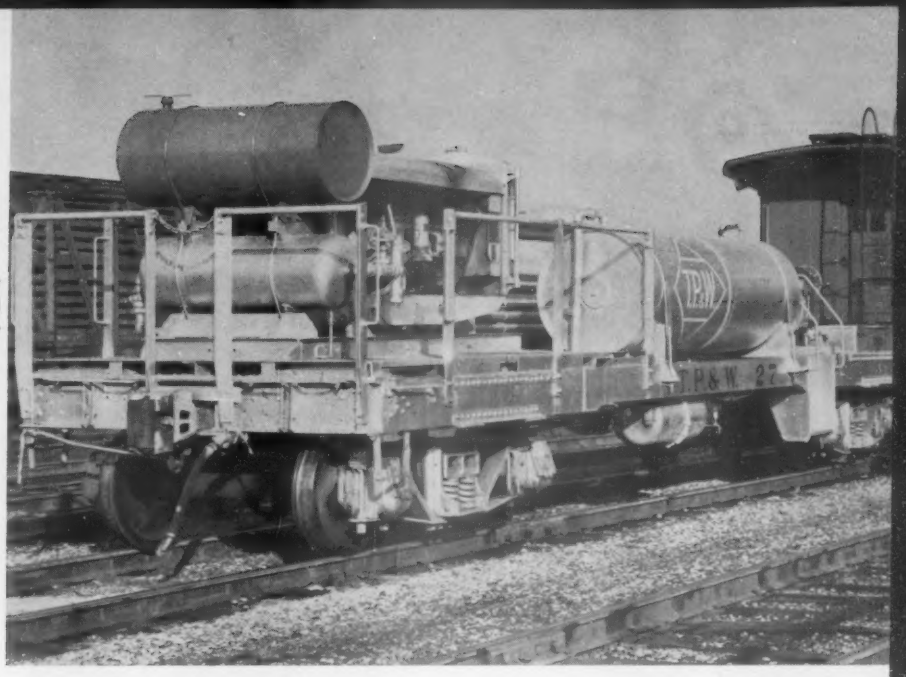
On Dave Beck . . .

"There is much to be said for Mr. Beck. He has consistently taken the position that the trucker has to be able to make money in order to pay good wages. He will fight against us for his members. But he will fight for us against punitive taxation and punitive legislation. They learned that in Washington. . . ."

Making Labor Contracts

"Many of our labor contracts are three-year deals, and our strikes tend to be concentrated in every third year. This was one of those years and the last one was 1952. We had a rough time this year, partly because the Teamsters wanted a master regional contract covering the eleven Western states, following the regional pattern previously set in the East.

"In the strike last spring the managements of the Western truck lines gave a demonstration of solidarity which surprised themselves and surprised the unions still more. This may have a salutary effect on the 1958 negotiations."



MOBILE CHARGING plant on the TP&W combines many of the advantages of fixed compressed air installations with some special advantages of its own.

Air Car Cuts Yard Time

Long trains leave the yard up to a half hour sooner since the TP&W put an air compressor car in service at Peoria to charge trains before coupling on the locomotive.

The railroad finds it has the advantages of fixed yard charging plants installed at numerous yards throughout the country—like charging trains at a faster rate than a locomotive; beginning the charging process before the locomotive is coupled on; and generally delivering air with a lower moisture content.

The car also adds a few advantages of its own. It can move from one end of the yard to the other, thus providing charging facilities which would be equivalent to fixed installations at several points. The car also allows a cut of cars to be moved while being charged.

Basically the TP&W-designed car comprises an air compressor at one end and a pair of reservoirs at the other. The compressor is driven by a gasoline engine, which is electrically started. The two reservoirs jointly contain a volume of air equivalent to a 100-car train. The valve to control the air discharge and gages for testing the train are accessible from the ground.

Once started, the compressor maintains pressure in the reservoirs automatically, cutting in when the pressure drops below 100 psi. When the top setting of 110 psi is reached, the compressor unloads, and it and the engine idle until enough air is used or leaks off for the pressure to drop to 100 lb.

If shut down, the engine must be started by pressing the starter button. Control of the air to the cars to be charged is by a standard engineer's brake valve. With a 100-gal gas tank, refueling is required but weekly with an average of four to six trains charged a day.

Couples to Caboose

Normally the air car is set behind the caboose. This is the most convenient point while making up the train. It is also of some advantage from the charging standpoint as the rear of a long train is the hardest part to pump up. The cut-out cock on the front of the first cut of cars is closed and charging begins. When the next cut is attached and the adjoining cars are coupled up, the cut-out cock is opened to the second cut while the cock on the other end of the second cut is closed.

By the time all cuts have been coupled together, the train is charged or at least nearly charged. When the locomotive is coupled up, the running air test is made, and the train can depart without waiting for the train line to be pumped up.

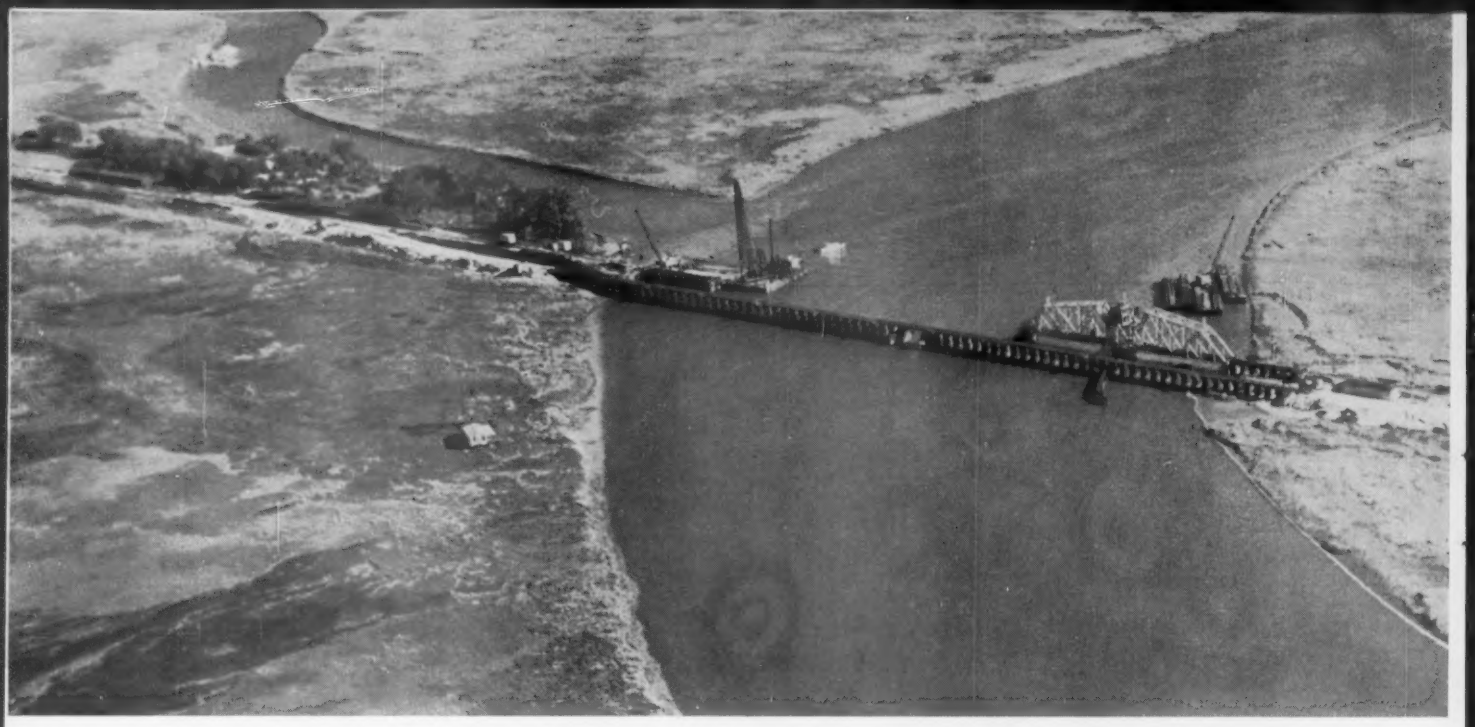
Air Leaks Found Sooner

Reports indicate that trains (which average 80 cars) have all standing air brake tests made and are ready to go within 7-10 minutes after coupling up the locomotive.

Estimates of the actual time gained in getting the train out of the yard average 15 minutes for short trains to 30 minutes for the TP&W's longest trains of about 100 cars.

An indirect benefit that results from the use of the car when time permits is making a preliminary air test for application and release of brakes, and to detect and remedy air leaks before the train is made up. The car can also be used anywhere in the yard to precharge cuts of cars should this be desired.

Actual charging time is less than with a locomotive because the large reservoirs permit the car to discharge air, at least initially, at a rate substantially above the capacity of the compressor.



HOW THE L&N COMBATS A 75-YEAR PROBLEM OF

Bridge vs. Hurricanes

Concrete-filled steel-tube piles, 129 ft or more in length, are going into the substructure of a new bridge the Louisville & Nashville is building across the Pearl river about 50 miles north of New Orleans. The original bridge was carried away in 1947 by a tidal wave caused by a hurricane. As further insurance against the devastating effects of waves caused by coastal storms and hurricanes, the new bridge is being built approximately 6 ft above the elevation of the bridge that was destroyed.

On September 19, 1947, a hurricane swept in from the Gulf of Mexico causing extensive damage to property between Ocean Springs, Miss., and New Orleans. This storm caused a tidal wave that practically reduced the road's Pearl River bridge to ruin. Just about everything except a swing drawspan was swept away.

Originally, the bridge consisted of nine deck-girder spans, one swing through-truss drawspan, and 128 ft of timber trestle. After the hurricane, seven of the deck-girder spans —some 400 ft of the bridge—were missing. In addition, a portion of the timber-trestle was completely destroyed.

Other Storms in Past

From 1881 until the 1947 hurricane struck, storms or hurricanes had interrupted service on the road's New Orleans and Mobile subdivision 21 times. Prior to the 1947 incident, the line had been out of service a total of 129 days as the result of these storms and damage to the roadbed and structures during that time was estimated at $1,229,840. The 1947 hurricane added 35 days to the out-of-service time and $2,661,637 to the cost.

The extent of the damage to the structure precluded the thought of making immediate permanent repairs. To reopen the line as soon as possible, an open-deck trestle 410 ft long was constructed to replace the damaged portion of the bridge. Treated timber piling was used and the trestle remained in service until the project for building a permanent bridge was started in early 1955.

At the Louisville & Nashville crossing the Pearl river is approximately 55 ft deep. In 1951, three test core borings were taken at strategic points to determine the bearing capacity of the soil at the bridge location. These test cores, which extended as far as 200 ft below the surface, revealed a soft bottom overlying a layer of relatively stiff clay lying at depths varying from 72 ft to 80 ft below the surface. However, at a depth of 110 ft, sand was encountered which extended to the limits of the test borings. It was decided that the foundation piles for the new structure would have to be founded in this layer of sand.

The design selected for the substructure consists of piers of tubular steel piling filled with reinforced concrete and capped with concrete. The road had had experience with this type of construction on two previous occasions—in a bridge at West Pascagoula, Miss., and in an overpass at New Orleans. The piles selected consisted of Armco ½-in. steel-tube sections 24 in. in diameter and a 12-in. steel driving tip.

BEGINNINGS of the new bridge, alongside temporary trestle, are shown in this aerial view. (at the left)

TEMPORARY run-around trestle was built upstream to carry traffic during the construction of the bridge.

The design calls for the piles in each pier to be driven in the form of two groups of five piles each. The batter is 2 in. per foot, giving a spread arrangement calculated to impart rigidity.

Six piers of this type will be needed. The rest pier at the north end of the drawspan will be of a larger and different shape using 16 of the piles. The pier on the north shore of the river will consist of a reinforced-concrete shaft on a reinforced-concrete footing supported by a timber pile foundation. A cofferdam will be used in building pier.

When finished, the new bridge will be 955 ft long. Of this, 526 ft will be completely new. In addition, the 254-ft swing drawspan, originally erected in 1916, will be renovated and new machinery, powered by a diesel engine, will be installed in the drawhouse. The bridge will then be composed of six 74-ft 6-in. through-girder spans, one 60-ft deck girder span immediately north of the drawspan, one 24-ft deck-girder span immediately south of the drawspan, the renovated 254-ft swing drawspan, and 147 ft of new trestle approaches. The structure will be designed to carry two Cooper's E-72 engines and tenders plus a 7,200-lb uniform load.

Most of the reconstruction work is being done under contract by the W. Horace Williamson Company, New Orleans. This company rebuilt the structure after the 1947 hurricane.

Run-Around Trestle Built

Before construction of the permanent bridge could be started, a 983-ft temporary runaround trestle

MORE ON NEXT PAGE

STEEL TUBE sections and driving tips are assembled and welded on barges. With open ends sealed, the piles . . .

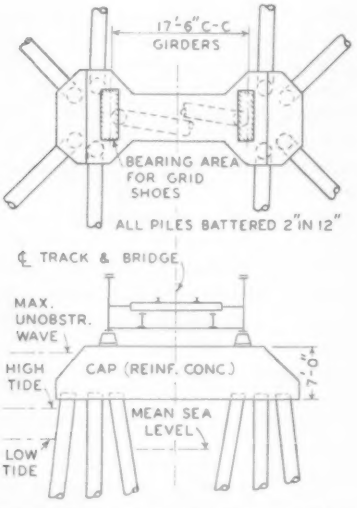
. . . ARE FLOATED to the site of the pile driver. A 9,000-lb single-acting steam hammer is used.

A COFFERDAM will be used in building the concrete pier on the north shore of the river. This pier will be founded on treated timber piling.

BRIDGE TO RESIST HURRICANES

was built to permit uninterrupted train service during the project. The runaround trestle is 65 ft upstream from the existing bridge. Small boats can pass beneath it but otherwise the river was closed to waterborne traffic.

As the first step after the runaround trestle was placed in service, a railroad salvage crew began dismantling the old trestle and a contractor was engaged to pull up the treated piling that was driven in 1947. This was necessary to clear the way for the placement of the new piers. It is reported that 95 per cent of this salvaged piling is in excellent condition for re-use elsewhere.



BATTER of the steel-tube piles gives desired resistance to the lateral force.

Piles Fabricated in Field

It was calculated that the desired bearing capacity for the piles would be obtained at the 118-ft level. Allowing for a 2-ft cutoff, this normally would require a pile 129 ft long. However, as outlined in the contract specifications, if the desired bearing capacity is not obtained at the calculated level, additional lengths of the steel tubing are added and the pile is driven until the desired capacity is obtained.

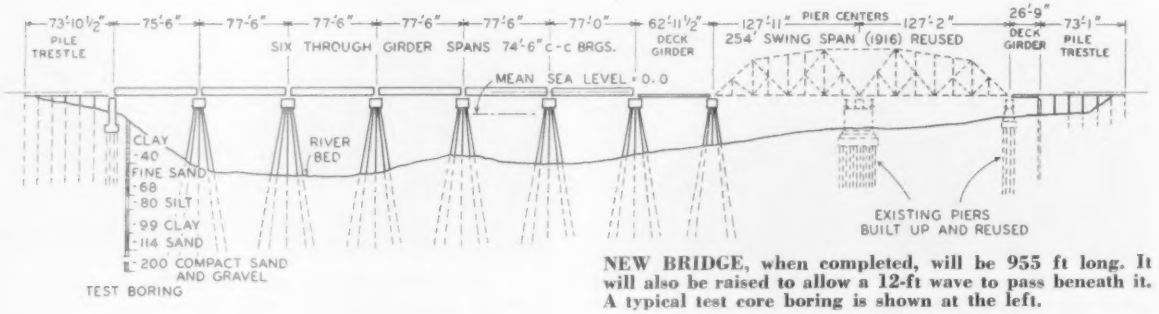
For ease in handling, the steel tubing for the piles was obtained in 64-ft lengths and shipped directly to the job site. The sections and the driving tip for each pile are assembled and welded together on barges near the bridge location. When the field fabrication of each pile shell is complete, the top 70 ft of pile is given two applications of asphaltic coating to protect it against corrosion. The open end of the pile tube is then sealed and the pile is rolled into the river to be floated to the pile driver.

The pile driver, mounted on a barge, is equipped with a steam hammer having an energy output of 34,000 ft-lb per blow. Each pile is driven to develop an ultimate load capacity of 200 tons. Should any of the piles be bent or ruptured during the driving process it is pulled and another driven in its place.

When all the piles for a single pier have been driven, a template is placed around them to prevent movement while the concrete is placed in the pile tube and in the cap form.

Raising the drawspan to the new grade will present a special problem. The estimated weight of this span is 520 tons. However, in the lifting operation, it will be permissible to apply only 50 tons at each end, or a total of 100 tons at both ends. This means that the remaining 420 tons must be applied at the double-girder floorbeam at the middle of the span. When this article was written work of raising the drawspan had not been started.

After the contractor has completed building the piers, placing the spans and raising the drawspan, the Louisville & Nashville will use its own forces to complete the new bridge.



NEW BRIDGE, when completed, will be 955 ft long. It will also be raised to allow a 12-ft wave to pass beneath it. A typical test core boring is shown at the left.

EXTRA CARE for negotiating 5.83% slope involves change in dynamic brake on diesel unit, adding empty cars.

SAND AND SPRAY combination used to rid track of slick coat from soap plant traffic gives needed traction.

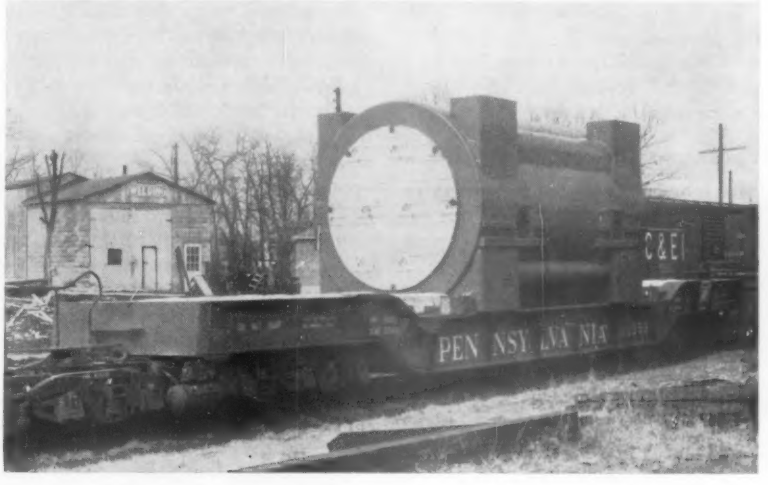
Water Cuts Slipping on Stiff Grade!

Handling a heavily concentrated load down a severe grade is always tough. When a load approaching a million pounds on two cars is taken down the steepest standard line grade in the U.S., care must be exercised even above that normally accorded shipments on a 5.83% slope.

Regular operating practice on the PRR Madison (Ind.) branch is to use six-motor general purpose diesel units with some special modifications. One is a change in the dynamic brake to increase its retarding effort at very low speed without damaging the traction motors.

Normally this brake can only be applied when the engine is idling. With the PRR change, it can be applied with the engine speed about half way between idle and full, or 500 rpm. The principal reason is to increase the speed and therefore the cooling capacity of the traction motor blowers. The higher engine and generator speed also makes more field current available at low locomotive speed to give greater braking effort.

The two locomotives assigned to this branch are equipped with a water spray to improve rail-wheel friction. This is to wash off a slippery coating that gets on the rails from hauling animal entrails to a soap factory. The water spray—warmed to 160 deg by a heater in the nose of the unit—cleans off this coating. While this leaves the rail wet, the wet rail plus sand has been found to give better traction than sanding the uncleaned rail even though it is dry.



HEAVY LOAD of 600,000 lb generator on depressed flat plus another of 200,000 lb made for ticklish move.

With radio DT&I freights get over the road faster, cars make connections earlier, utilization of locomotives is better, and there's work time for on-track maintenance equipment

DISPATCHER AT DEARBORN selects wayside station, which he remotely controls when calling moving trains.

Here's How Words Save Dollars

Extra 966 south was cruising at a comfortable 45 mph behind a pair of GP-7's with 46 loads and 9 empties. Some three miles ahead was the Ann Arbor crossing and interchange track where 966 was to set out three cars for the AA pick-up. Conductor Howard Labo, riding in the second diesel unit, picked up the radio handset and said, "Extra 966 south calling Diann."

"This is Diann. Come in Extra 966 south," replied interlocking operator W. H. Eyler.

"How does the crossing look for us? We'll be down there in about five minutes, and we've got three cars for the Ann Arbor."

"Come ahead, I've got the crossing lined for you," Eyler replied.

Extra 966 south pulled up short of the crossing; the "jeeps" cut off with the three head-end cars, and set them out on the interchange track. When recoupling to the rest of the train, Conductor Labo found a defective coupler on the first car. He immediately climbed into the diesel, picked up the radio handset, and operated a toggle switch. This action caused a red lamp to be illuminated on the dispatcher's radio control unit.

"Dispatcher," said J. D. Boudreau in his Dearborn office.

"This is Howard Labo on Extra 966 south. We're down here at Diann, and we've got trouble with the coupler on a covered hopper, which we are to set out at Delta. I don't think we can make it, so I'm going to set it off here."

"O.K., I'll send a carman down to look at it," answered the dispatcher.

These are just two out of many hundreds of instances in which radio is keeping trains moving on the Detroit, Toledo & Ironton. By using radio, the crew set out the covered hopper in about half the time it would take otherwise. About 5 minutes was saved on the interchange set-off, because the conductor was able to inform the operator about the set-off before the train arrived. The interchange switches are within interlocking limits and are power operated, thus requiring coordination between the train crew and the operator.

Radio for Everybody

Standard 30-watt radio sets including plug-in transmitter, receiver and power supply units have been installed on 34 DT&I road switchers (GP-7's and GP-9's). Seventeen cabooses have been equipped with racks for dry-battery walkie-talkies. Eight wayside offices have been equipped with radio: Diann, Mich., Delta, Malinta, Leipsic, Lima, Quincy, Springfield and Washington Court House, Ohio. Each of these stations is remotely controlled by the dispatcher at Dearborn, Mich., and can be locally controlled.

Three maintenance of way system gangs use radio when they are working on line. They have five trucks and seven on-track work equipment machines equipped with radio, as

CONDUCTOR ON DT&I rides in locomotive. Portable desk enables him to check waybill information on a set-out with wayside station.

WAYSIDE RADIO STATION is the link between the dispatcher and the conductor on a moving train.

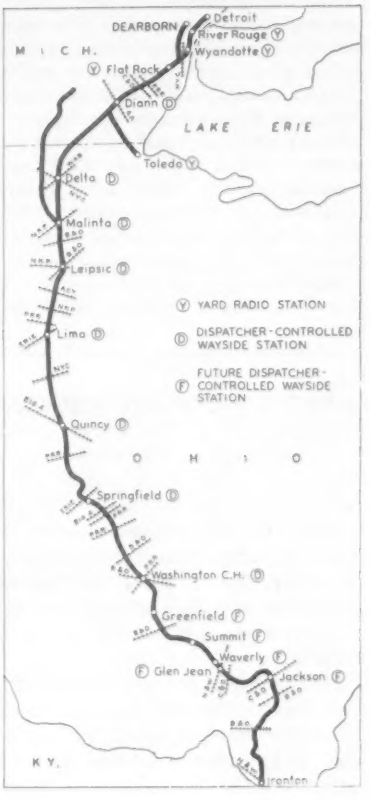
well as nine walkie-talkies. In addition to this road-train radio equipment, the DT&I has radio at four yards: Rouge, Wyandotte and Flat Rock near Detroit, and Toledo, with a total of 14 radio-equipped switch engines. All radio, road-train and yard, operates on two frequencies: 161.43 mc for point-to-train, channel A; and 161.61 mc for end-to-end, channel B.

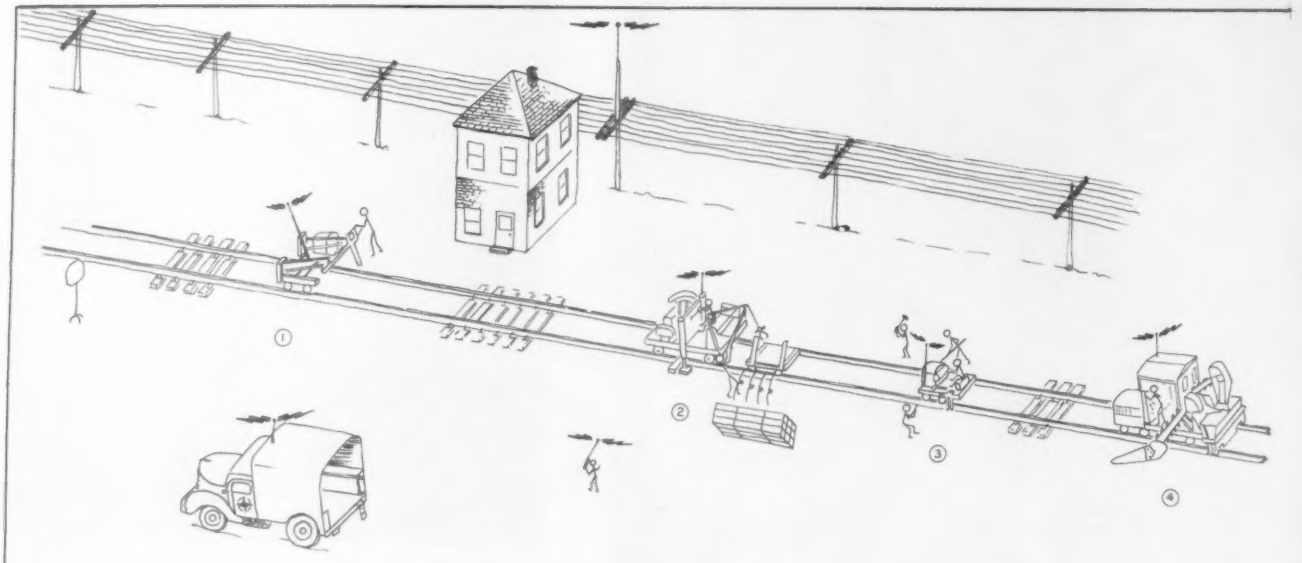
How Radio Calls Are Made

DT&I practice is for the conductor to ride the second diesel unit so he may be near the engineman to confer concerning train orders and work. To call the dispatcher at Dearborn, the conductor picks up the radio handset, and operates a toggle switch to the left (position No. 1). This action causes the locomotive radio transmitter to send out a 1,500-cycle tone, which is received by the nearest wayside radio station and put on the dispatcher's telephone circuit. Receipt of the tone at the dispatch control unit in Dearborn causes a red mobile call-in lamp to be illuminated.

To answer, the dispatcher steps on a foot-switch and speaks into his microphone. A white "transmitter-on" lamp is illuminated to inform the dispatcher that the wayside radio station transmitter is in operation during the time he has his foot-switch depressed. The conductor hears the dispatcher's answer, transmitted over the line circuit to the wayside radio station, thence via radio. The conductor converses with the dispatcher in the normal press-to-talk, release-to-listen use of the push-button in his handset handle.

A feature of this installation is that the control circuits of the wayside radio station are left in the latched condition for a definite time period after receipt of the 1,500-cycle (call-in) tone from the locomotive. This time period is controlled by a motor-driven timer, and if the dispatcher answers within the allotted time, he will be able to control the wayside radio station. The





SYSTEM MAINTENANCE GANGS use radio to coordinate their operations. Engineer of approaching train radios gang foreman to obtain permission to enter working limits

RADIO PAYS DIVIDENDS IN ON-TRACK MAINTENANCE

The DT&I has three mechanized maintenance of way gangs, with radio to assist them in their work. The rail-laying gang has a Burro crane and a gang truck equipped with radio. They also have three walkie-talkies. The tie-renewal gang has radio equipment on a gang truck, a mechanic's truck, one Kershaw ballast regulator, an RMC Tiemaster, a Pullman tamper; and they also have three walkie-talkies.

The surfacing gang has radio on a gang truck, a mechanic's truck, a Kershaw ballast regulator, a Matisa tamper, a Kershaw broom, and also three walkie-talkies. These gangs live in house trailers, and are hauled from the camp location to the point of work in the gang truck. Each gang has a foreman and an assistant foreman.

These gangs work from 7:30 a.m. to 4:00 p.m. and working limits usually extend about three miles. When they go to work in the morning, they put up a sign at each end of working limits reading "System Gang Stop." Crews of freight trains to operate into these working limits are given "19" orders which define the working limits (milepost locations) and give the name of the foreman in charge of the gang. Operating rules require that a train approaching one of these system gang signs will come to a complete stop unless the engineman has obtained permission by radio from the foreman to enter the working limits.

Radio has reduced delays to trains in passing through the work limits and has increased the productive working time of the gangs. The engineman or conductor calls the gang foreman

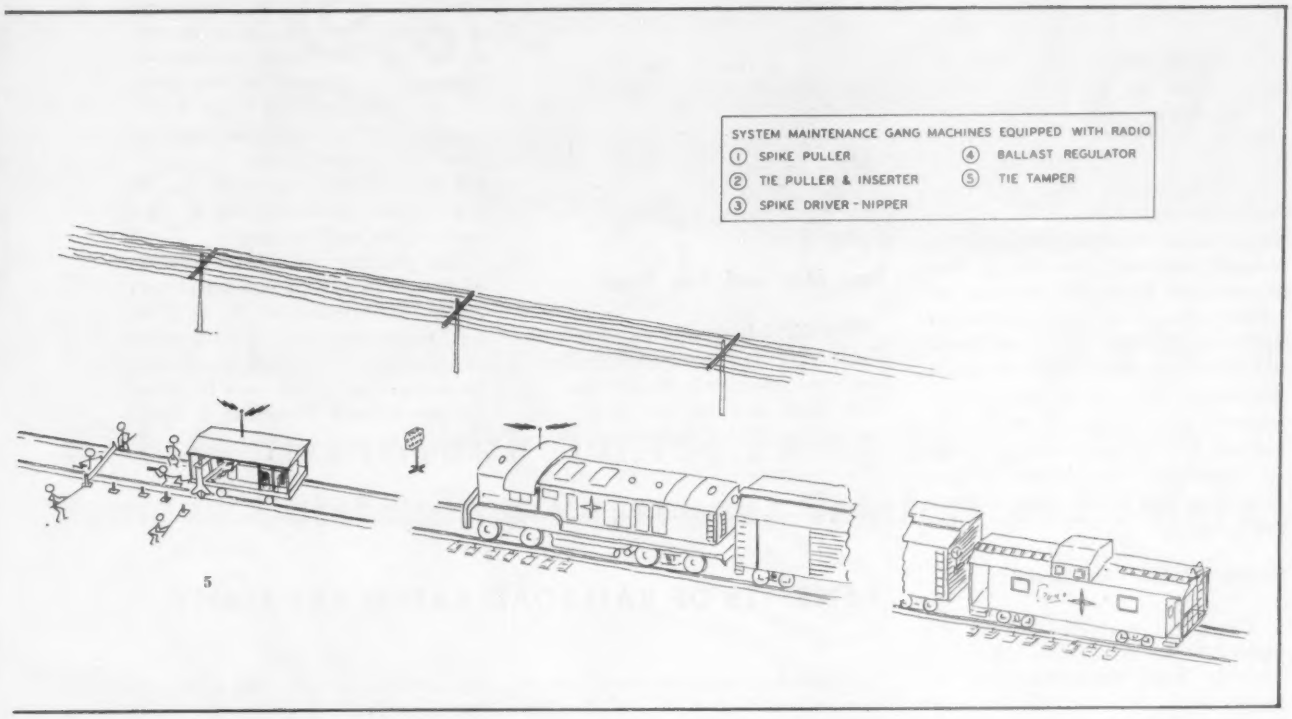
HERE'S HOW WORDS SAVE DOLLARS

advantage of this type of control is that the dispatcher does not need to know through which station the train is calling, thus he wastes no time in answering a mobile call. In emergencies, the quick answer is most helpful.

The timer (at the wayside station) is automatically reset for each transmitted or received speech period, so that as long as the interval between utterances is less than the time allowed, the connection is held. The timer prevents the dispatcher from inadvertently being permanently connected to the station. After the set time runs out (usually after the conductor and dispatcher are finished talking), the station reverts to normal standby.

When the dispatcher desires to call a conductor on a train, he must select the wayside radio station through which to make the call. To do this, the dispatcher raises a spring-return selector key on his dispatch control unit corresponding to the particular wayside station. A momentary tone code is transmitted over the line wires, which places the wayside station on dispatcher control. An answer-back tone is heard, and a red indication lamp is illuminated, reminding the dispatcher that the connection is made.

With the channel-selection key on channel A (point-to-train), the dispatcher steps on his footswitch and speaks into his microphone. The continuous low-frequency press-to-talk tone code corresponding to channel A is sent out as long as the footswitch is held down.



when the train is five or ten miles away, thus giving the foreman time to get his men and equipment in the clear. Normally, the engineman only reduces speed, and does not have to come to a complete stop, because the foreman has had time to radio him that the track is clear.

In some instances, the gang foreman will send the assistant foreman with the on-track equipment to get it in the clear, while he stays and supervises closing up to enable the train to pass safely. When the equipment is in the clear, the assistant foreman, using the radio on the work equipment, calls the foreman who carries a packset. The foreman can then radio the engineer to come ahead. The foreman usually calls the chief dispatcher in the afternoon to inform him of the work limits for the next day. Thus the dispatcher has enough time to be able to get out "19" orders regarding these limits.

Radio has materially aided the track gangs in their work. Often some machines will be spread out over a half-mile or so of track, making communication difficult. With radio on each machine, it is simple for the foreman or assistant foreman to coordinate operations by radioing the operators. The mechanic often has to leave the job to secure repair parts, and he keeps in constant communication with the foreman by using radio.

When the camp is moved from one site to another, they often make up a convoy with radio-equipped trucks at each end. The foreman then can keep track of the convoy, especially when driving through traffic in cities. When talking within the gang, the radio is operated on the end-to-end channel B. For other calls, to wayside stations and to trains, the radio is switched to channel A. The equipment is the automobile-type, contained in one case (transmitter, receiver and power supply), and operates on 6 or 12 volts d-c. All sets are permanently mounted on the work equipment machines, with antennas on cab roofs.

The transmitter at the wayside station is instantly placed in operation when the tone is received at the wayside, and is cut off at once when the tone code ends. This is important in the event of interruption or line failure, because the transmitter cannot be left on the air inadvertently from such cause. A filter prevents interference with the transmitted speech. To disconnect the station, the dispatcher operates the station select key downward. A tone code is transmitted to disconnect the station, and an answer-back tone will be heard to indicate the disconnecting of the station.

The locomotive radio is normally on channel "A" (point-to-train or train-to-wayside frequency). When an engineer or conductor wishes to talk to the man in the caboose, he lifts the handset, and presses a black pushbutton on the control unit, which transfers the radio transmitter and receiver over to channel "B" (end-to-end frequency). When they finish talking, replacing the handset returns the transmitter and receiver to channel "A." The locomotive radio is normally on channel "A" because most calls are made between the conductor and wayside stations, or conductor and dispatcher.

Because the conductor rides in the second diesel, and only a flagman rides in the caboose, the DT&I has found that a walkie-talkie provides sufficient radio coverage between the ends of a train. Hence, a dual-channel dry-battery packset is carried on the caboose. Seventeen cabooses are fitted with special racks to hold them. Much use is made of these sets when a train stops to set out cars. When the train recouples, the flagman radios the head-end that the air is pumped up. He also assists in the set out, by radioing instructions to the engineer.

Generally the wayside radio sta-

HERE'S HOW WORDS SAVE DOLLARS

tions are at interlocking towers or depots which are train order offices. All wayside radio stations are normally in the receiving position. Thus the operator can hear all incoming calls, including both parties to conversations between train crews and the dispatcher when the dispatcher is remotely controlling the station. This arrangement keeps the operator informed concerning train operations and also forestalls him from breaking in on a conversation between the dispatcher and a train crew. If the operator desires to talk to the dispatcher, he may use the radio circuit by depressing the "intercom" key. When he does so, the transmitter is not operated.

Radio "Patch" for Breaks

The eight wayside stations are spaced to form a radio "patch" to provide solid communications between them in case of line wire breaks. A feature of this installation is the employment of an emergency P/T (press-to-talk) tone generator at each wayside radio station. If, for example, a line wire break is between Diann and Delta, stations at these points would be the radio patch stations. If someone at Lima desires to talk with the dispatcher at Dearborn, he would operate a special emergency key on his radio remote control unit which would send a radio patch P/T tone over the line wires to key the Delta radio transmitter. His voice would be received at the Diann station and then sent over the wire line to the dispatcher.

As far as the Diann radio station is concerned, the person at Lima might be calling in from a locomotive. Any operator, Delta on south, would have to operate the special emergency radio patch key to put out the P/T tone, insuring a connection through to the dispatcher (similar to a mobile call).

One Wire Pair

To improve transmission on the message and dispatch circuits, the DT&I has installed carrier between Dearborn and Springfield with back-to-back terminals at Lima. The result is that transmission quality (radio or telephone) at all waystations is the same as though the dispatcher were at Dearborn, Lima and Springfield.

Future wayside stations (dispatcher control) are to be installed at Greenfield, Summit, Waverly, Glen Jean and Jackson, Ohio.

Four Men and Two Shops

The DT&I has radio shops at Flat Rock yard and Springfield. There are two electronic technicians at Flat Rock and one at Springfield, and an assistant electronic technician at Lima. They work a five-day week from 7:30 a.m. to 4 p.m. These men change out the radio units on the locomotives and make operational checks on the diesels as they come through their respective yards. Radio on road engines is checked at Flat Rock before road trains go south; and at Springfield the radio on the road engines is checked before they leave, either north or south.

The planning for, and installation of the radio system equipment was under the direction of W. G. Clinton, superintendent communications and signals. The radio equipment, as well as the carrier, was furnished by the Federal Telephone & Radio Co.

BENEFITS OF RAILROAD RADIO ARE MANY

"Radio has taken the curves out of our railroad," says W. O. Peecher, DT&I superintendent at Dearborn. "Now our head-end and rear-end can get together very easily." The DT&I has found this to be of especial benefit when setting out cars at interchange points, and there are over 19 of them on the 360-mile line. They save money, too, because they often "beat" the midnight deadline when per diem charges begin.

Train movements are authorized by timetable and train orders. Approximately 30 road trains are operated daily between Flat Rock yard (south of Detroit) and Jackson. The DT&I also operates 15 pullers (transfer moves) between Flat Rock yard and the Detroit industrial area (Wyandotte and the Rouge Ford plant). Other trains include four turns daily which operate out of Flat Rock yard. Biggest volume handled is auto parts southbound.

Other freight includes chemicals, coal and merchandise.

One of the time savers for these trains is that with radio the engineman calls ahead to interlockings and tells his approximate arrival time and requests information as to whether he will get the crossing. The interlocking operator, knowing in advance of the approaching train, is able to inform the engineer whether he can come on through or should slow down. This use of radio has practically eliminated stopping DT&I trains at these interlockings.

An important aspect of this radio operation is that the dispatcher can more accurately plan meets, because he can now call trains directly and find out exactly where they are and what they are doing. No longer does he have to guess when a train will arrive at a station. Based upon information received directly from the engineman, the dispatcher often changes a meet, and he can tell the engineer to pick up a train order at a station.

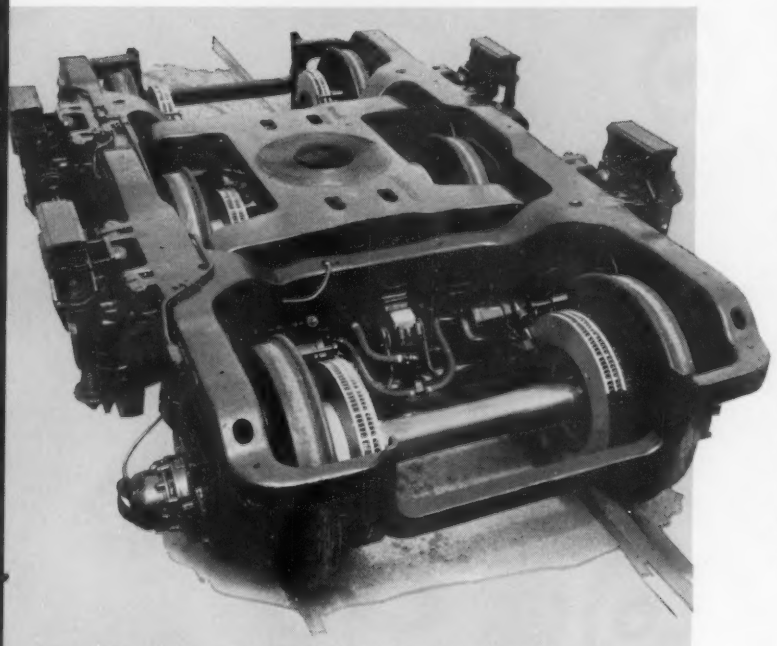
A normal situation is to have two or three trains follow each other along the line about three to four hours apart, each one with assigned stops to make to do work. Before radio, there was often a considerable time lag before the dispatcher could take effective action to move the trains along more rapidly. Now he can tell a crew to skip the next stop, instruct the following train to make that stop. Thus all trains are kept closer to their schedules, and kept moving. This is most often done when the cars to be picked up are empties.

In the normal procedure of "taking" a train in and out of a siding, radio saves time when trains take sidings to pass. When a crew must set out a hot box, the radio saves time, not only in the set out, but by eliminating the delay for a crew member to walk to one end of a 100-car siding to the telephone to inform the dispatcher of the set out. Now the conductor simply picks up his radio handset, and calls the dispatcher. The flagman often uses the walkie-talkie when making these set outs.

Built by
The Budd Company

New Dome Cars for the Great Northern

With Commonwealth Outside Swing Hanger Trucks Provide Outstanding Passenger Comfort and Safety



Top view of 6-wheel outside swing hanger type truck with large central bearing.

The Commonwealth 6-wheel trucks under these new full length dome cars, with outside swing hangers and spring suspension, assure exceptional riding comfort and safety with lowest upkeep cost.

These modern trucks of latest design greatly simplify inspection and maintenance because of greater accessibility of parts. Central bearings eliminate truck shimmy and increase mileage between wheel turnings.

For the utmost in passenger travel comfort, plus substantially lower maintenance expense, equip *your* cars with Commonwealth Trucks with outside spring suspension, central bearings, and cast steel truck frames and bolsters.

GENERAL STEEL CASTINGS

GRANITE CITY, ILL. EDDYSTONE, PA.

"You Get Extra Battery Performance -

America's Finest!
GOULD KATHANODE
BATTERIES
for Air Conditioning
and Car Lighting

The MATERIAL HANDLING INSTITUTE'S EXPOSITION
Cleveland, Ohio
PUBLIC AUDITORIUM
JUNE 5th THRU 8th
1956
EXHIBITOR
Booth 1425

THANKS TO GOULD FIELD ENGINEERING SERVICE!"

It's a proven fact that regular, systematic battery care can add months, perhaps years, to the life of a battery! Gould's nation-wide Field Engineering Service enables *you* to get the benefit of this added service . . . and lower your over-all battery power costs.

Your Gould Field Engineer's one job is to see that you get maximum service from your batteries. He is factory-trained to instruct your own men as to correct maintenance routines and to help set up a simple record system for anticipating battery needs.

There's a Gould Field Engineer in your area. He's as near to you as your telephone. Call him. And when you see him, ask him for the new Gould Plus-Performance Plan material for your battery maintenance staff.

Always Use Gould-National Automobile and Truck Batteries

GOULD
Batteries

GOULD-NATIONAL BATTERIES, INC.
TRENTON 7, N. J.

"BETTER BATTERIES THROUGH RESEARCH"

©1955 Gould-National Batteries, Inc.

IT'S "PERFECT SHIPPING" MONTH, AND HERE'S . . .

How Southwesterners Cut Claims

Railroads in the Southwest report considerable success in making "Perfect Shipping" a year-round project, not merely a "month" when everybody concentrates on the importance of controlling loss and damage to freight.

All through the year, railroad representatives visit industries in the area covered by the Southwest Shippers' Advisory Board (all of Texas, most of Louisiana and Oklahoma, and parts of Arkansas and New Mexico). These railroad men offer suggestions and help in connection with particular problems relating to loading and bracing methods, and to packaging and handling of various shipments. During the annual Perfect Shipping Campaign each April, the railroads intensify their efforts, scheduling plant meetings where contracts have been made in preceding months.

Shippers and consignees generally have given the idea of these meetings enthusiastic support. In many instances, they have taken the initiative in arranging freight loss and damage prevention sessions calling on the railroad for speakers and other assistance.

Some of the meetings are scheduled in advance, while others are conducted on the spot without any preliminaries. Generally, a representative of the railroad contacts the traffic manager, superintendent or foreman of the industry, who either personally conducts the meetings or arranges for a plant supervisor to do so.

Informal, Convenient Meetings

The meetings are informal, and are held at the time and location most convenient for employees of the industry. Some are conducted in regular meeting rooms, while others are held in warehouses, shipping and receiving plants, or other on-the-job locations.

Normally, programs run from five to 30 minutes, and attendance varies from a few employees to as many as 100. Discussions are adapted to the level of the employees attending and generally relate to the particular type of freight handled in the plant. Speakers always stress the practical benefits of Perfect Shipping and the value of joint efforts of shippers, carriers and receivers in solving mutual problems to prevent freight loss and damage.

Those present are encouraged to make suggestions in the interest of Perfect Shipping or to bring up problems. Constructive ideas on prevention of freight loss and damage offered by supervisors and employees are followed up and, where possible, put into practice. Motion pictures on perfect shipping and careful car handling are often shown at plant meetings with excellent results.

While the railroads maintain close contact with shippers and receivers throughout the year, working out problems that arise from time to time with respect to the handling of shipments, the Perfect Shipping Campaign every April serves as an added stimulus to the overall prevention program.

S. H. Milby, superintendent of the Southern Pacific's Freight Protection, Merchandise and Station Service department, says the success of this phase of the SP's Perfect Shipping Campaign is due to the "splendid cooperation of shippers and receivers, plus the combined efforts of FPM&SS representatives, SP traffic men, division officers, local agents, freight inspectors and personnel of the Southern Pacific Transport Company, the railroad's trucking subsidiary, all of whom are 100 per cent behind the idea of preventing freight loss and damage."

According to Louis A. Schwartz, manager of the New Orleans Traffic & Transportation Bureau, and general chairman of the Southwest Shippers' Advisory Board, the board is "exceedingly proud of the splendid record of achievement of its Joint Loss and Damage Prevention Committee, which—under the chairmanship of Lon L. Nusom, manager of the Traffic and Transportation Department of the San Antonio Chamber of Commerce—has contributed significantly to the prevention of loss and damage to freight. . . ."

Equally good results may be obtained, these men believe, by any regional advisory board which may see fit to heed the recommendation to "give this 'Industrial Plant Visitation' technique a try"—a recommendation made by Roger C. Avery, general chairman of the National Loss and Damage Prevention Committee of the National Association of Shippers Advisory Boards.

ACTIVITIES OF LOSS AND DAMAGE PREVENTION OF ONE MAJOR RAILROAD FOR 1955

Shipper and consignee contacts—Loading containers, lcl and carload problems	3,296
LCL work—railroad stations	775
Educational sessions, l&d committees, yard speed tests, observations, etc.	967
Misc. studies, loading specifications, etc.	769
Total contacts	5,807*

*This was an increase of 436 contacts (10.6%) from 1954

More Car Orders

(Continued from page 13)

latory policy has been one of several factors contributing to the attitude of confidence so apparent in the railroad industry today." The commissioner continued:

"This great medium of transportation, at long last, is entering a new era. The defeatist complex under which it operated for so many years is rapidly vanishing. In its place we are finding a refreshing new attitude and spirit of optimism. Bold, aggressive management is adopting a positive approach to problems of the industry.

"The tremendous amount of new equipment now on order dramatically reflects the confidence of railroad management in the continued expansion of our economy. Willingness to experiment with special service equipment is further positive proof of the new vitality in this industry. All of these things indicate a determination not only to hold, but also to increase, rail participation in the nation's total traffic."

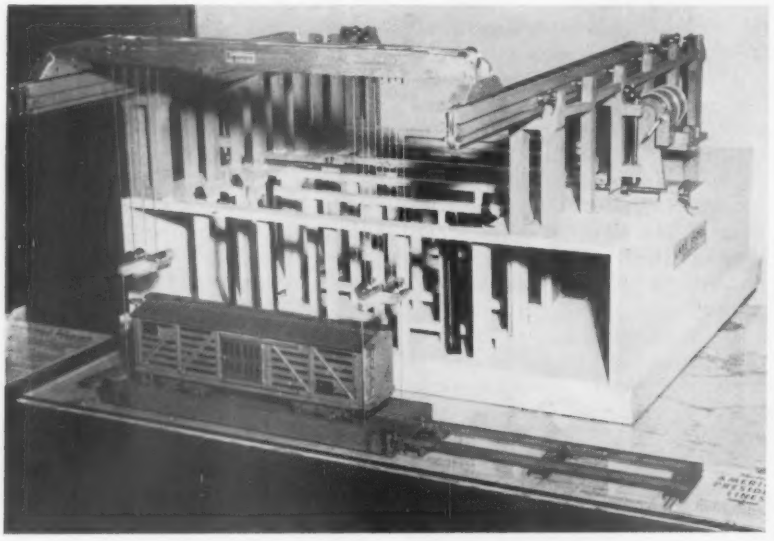
Car Shortage Ahead—Turning his attention specifically to the meeting's theme—car shortage—Commissioner Clarke predicted that there will be another shortage of "very serious proportions" during the next eight months. He noted that the railroads are doing something about it—stepping up repair programs, and ordering new cars. He also noted how the new-car program has been retarded by inadequate supplies of steel, and he made a plea to the steel industry for "more generosity in the allotment of materials for car building."

As to what the commission is doing, Mr. Clarke referred to Service Order No. 910 which becomes effective April 9 to forbid practices which "wilfully delay the movement of loaded freight cars." (Railway Age, March 26, page 11.) Then came the commissioner's references to other orders which the commission is considering. The order requiring car movements within 24 hours would be like Service Order No. 904 which expired December 31, 1955, after having been in effect from July 25, 1955.

Pitch for Penalty Per Diem—From his discussion of prospects for a penalty-demurrage order, the commissioner went on to predict that issuance of such an order would inspire arguments that "justice and equity require similar treatment for those railroads which are habitually delinquent in the handling of cars." Thus he considered it unfortunate that the commission lacked authority to impose penalty per diem.

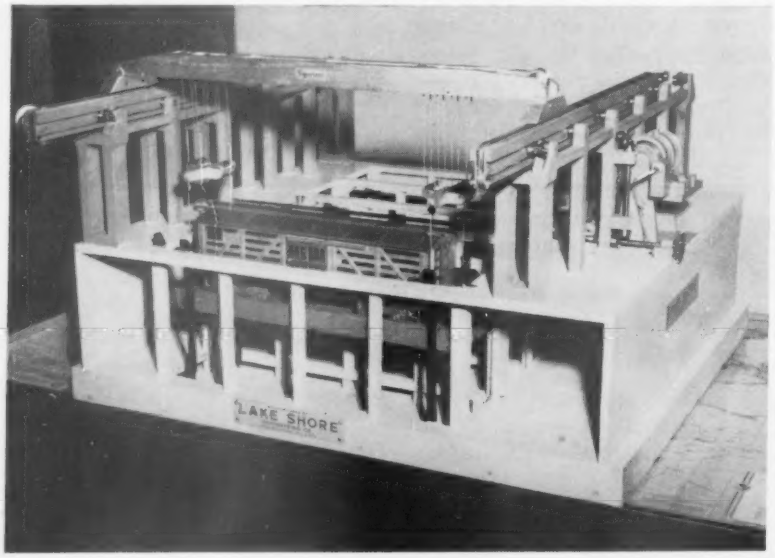
He noted that a pending Senate bill, S.2770, would give the commission such power. The Freight Car Subcommittee of the Senate Committee on Interstate and Foreign Commerce was scheduled to begin hearings on the bill March 29. Mr. Clarke's support of such legislation was pointed up by this statement:

"The one—and perhaps the most important segment of the cycle of car handling and movement which



For Handling Freight Cars at Any Port of Call

Smooth, safe and rapid handling of cargo with ship-mounted gear is claimed as a feature of equipment designed for loading or discharging fully loaded freight cars at any port of call. The photographs show a model of the equipment, developed by the Lake Shore Engineering Company, adapted to carferries for handling loaded freight cars. In picture above, a freight car is spotted on pallet on the dock. The device is extended over the car to lift it and the pallet aboard the vessel. Below, the car is shown being lowered into the ship's hold, after which the car is run forward or aft on tracks on the various decks. After removal of car from pallet, latter is raised and relocated on dock to receive the next car.



has resisted practically every curative—is that phase where the car is in the hands of the carrier. During such periods the commission has virtually no way to compel prompt action. The lack of effective means to spur and stimulate railroads into greater efficiency in times of shortage is the major weakness in the present car-service provisions of the act."

RRs Keep Getting More Efficient

The latest review of railroad operating averages by the ICC's Bureau of Transport Economics and Statistics emphasized how "significant indicators of efficiency" looked better in 1955 than in the two previous years. The review was published by the bureau in its "Transport Economics."

It showed that the improvement was reflected in such freight-service indicators as cars per train, gross and net tons per train, per cent loaded of freight car miles and gross ton-miles per train-hour. The latter averaged 55,622 in 1955, compared with 1954's 53,897 and 1953's 51,750. Meanwhile, average freight-train speed decreased slightly, from 18.7 mph in 1954 to 18.6 mph in 1955.

Two indicators of equipment utilization—car miles per freight-car day and net ton-miles per freight-car day—also showed in 1955 what the bureau called "marked improvement" over 1954 and 1953. The 1955 averages, respectively, were 44.5 car miles and 923 net ton-miles. This compared with respective 1954 figures of 40.3 and 799, and with 1953 figures of 43.2 and 890.

In passenger service, the average number of passengers per train and per car showed some improvement in 1955, and the average passenger-train speed increased slightly — from 1954's 39.5 mph to 1955's 39.8 mph.

Meanwhile, the bureau noted that the condition of freight and passenger locomotives and passenger-train cars, as indicated by the percentages unserviceable, was not quite as favorable in 1955 as in 1954. Condition of freight-train cars improved.

"RRs Want Freedom, But Cry for Help"

While railroads are calling for mor freedom they are also crying for help from the Interstate Commerce Commission, according to Commissioner J. Monroe Johnson.

Colonel Johnson made this statement in a recent address to students of the Tenth Rail Transportation Institute at the American University, Washington, D. C. He put it this way:

"Railroads are complaining that they are over-regulated. They seek less regulation, but day by day they get into a mess and come in to ask the ICC's to get them out of their own mess."

The commissioner also said that this country's transportation is "so good" that one can't escape the conclusion that "we've had wise legislation ever since Congress turned its attention to transportation, and we've had wise administration."

Touching briefly on the Ex Parte 196 rate-increase case, Colonel Johnson predicted that the expedited procedure employed for that proceeding will be followed hereafter in general rate cases. The coal industry's opposition to the rate increase, he said, reflected a "rather remarkably different point of view" than the thinking which has moved that industry to raise its own prices promptly as its costs increase.

Outstanding Heroism

For risking his life to save a small child from being struck by a locomotive on which he was fireman, Otto L. Gibson (left), of the Missouri Pacific, has been awarded a Medal of Honor, on behalf of President Eisenhower. The medal is being presented by Anthony F. Arpaia, chairman of the Interstate Commerce Commission. Presentation ceremonies were attended by six of Mr. Gibson's ten children; his wife; officers of the MP, the AAR and the American Short Line Railroad Association; ICC members; and members of Congress.

Senate Cabinet Report Hearings Soon

The probability of early Senate hearings on legislation to implement the report of the President's Cabinet Committee on Transportation was strongly suggested by Senator Warren G. Magnuson in a March 27 luncheon address to the New York Traffic Club.

The Washington state Democrat, who is chairman of the Interstate and Foreign Commerce Committee, explained that his group "has some other matters to complete within the next few days," but added that "we hope to be able to get at this matter as soon as possible."

The proposals of the Cabinet Committee and the provisions of the senate bill designed to carry out those proposals (S. 1920) present, the Senator said, "many serious questions," on which "I find myself in the position of judge." He urged his audience—composed of representatives of all forms of transportation and of shippers—to "take some time to decide what is sound and necessary in these proposals" and to make their views known to the committee. "The statesmanlike efforts of shippers, carrier representatives and members of Congress will be necessary" to solve "the numerous problems" in the public interest.

Earlier in his address, Senator Magnuson had reviewed briefly the proposals of the Cabinet Committee, with special emphasis on what he described as its "three major proposals," namely, those relating to changes in the legislative standards for minimum rates to be charged by common carriers. More specifically, he described these three proposals as the recommended revision of the national transportation policy, the proposal to limit the Interstate Commerce Commission's power to fix

rates, and the suggested change in the rule of rate making. It is on these three proposals, he declared, "where the fight begins."

Included in the prepared text of his address as distributed to the press—but not actually delivered at the luncheon—was a brief analysis of the "extremely puzzling" problems raised by these recommended changes.

In this connection, the senator's text included a brief survey of the views of both proponents and opponents of the Cabinet Committee recommendations.

Dearing Hits "Fair Share" Concept

The ICC has not developed a quantitative formula or any consistent guiding principles to govern its decisions in rate regulation, Charles L. Dearing, executive director, Illinois Toll Highway Commission, recently told the Clearing Industrial Club of Chicago.

Mr. Dearing, on leave as senior staff member of the Brookings Institute, said leading rail-water cases show the ICC has interpreted the intent of Congress as requiring that "inherent advantages" of water transportation must be preserved by maintenance of rail-barge joint rates lower than all-rail rates between the same points.

"In other cases, the ICC has ruled that the public should be given the benefit of the lower cost and improved service regardless of the effect on competitive traffic," Mr. Dearing added.

In a long line of minimum rate cases the ICC has based its decision primarily on its judgment of whether the proposed rate is lower than necessary to meet competition, Mr. Dearing continued. The application of this "standard," in the final analysis, has placed the commission in the untenable role of trying to decide what constitutes a "fair share" of available traffic for each competing agency. Through this process, he said, the commission sometimes finds that a proposed rate is not likely to give the carrier more than a "fair share" of the traffic because it is no lower than necessary to meet the relevant competition.

"The commission has denied, in other leading cases, the proposed reduced rates even though they were admittedly compensatory, because they were found to be lower than necessary to meet the competition, and therefore would attract to the carrier more than his fair share of available traffic," Mr. Dearing declared. "Some cases have been decided in favor of railroads and some in favor of truck and water operators. However, the impact with which the commission has administered rate control, although important, is not a basic issue in regulatory policy."

Mr. Dearing believes the fundamental defect is found in any attempt to divide available traffic among several highly competitive agencies in accordance with such qualitative concepts as "fair share" or "inherent advantage." Any division of traffic on this basis presupposes technical competence and wisdom "which no commission, however well constituted, can be expected to command," Mr. Dearing said.

"Through joint efforts of government and private enterprise," Mr. Dearing went on, "the potentials of workable competition among transportation agencies are now equal to those in other important areas of our economy. It would therefore appear to be sound policy to unleash, at selected points, these competitive forces in order that the public may enjoy the full benefits of the capital investment and initiative which have converted the operation of our transportation system from a quasi-monopoly to pervasive competition."

Seaboard to Consolidate General Offices

Artist's conception of the Seaboard Air Line's new general office building in Richmond, Va., construction of which will begin this year. The completely air-conditioned building, to be eight stories tall at the highest point, is expected to be ready for occupancy in 1958. Consolidation of the SAL's general offices—now housed in four separate buildings in the Norfolk, Va.-Portsmouth area—is designed to promote greater operating efficiency.

Piggyback Will Continue to Grow

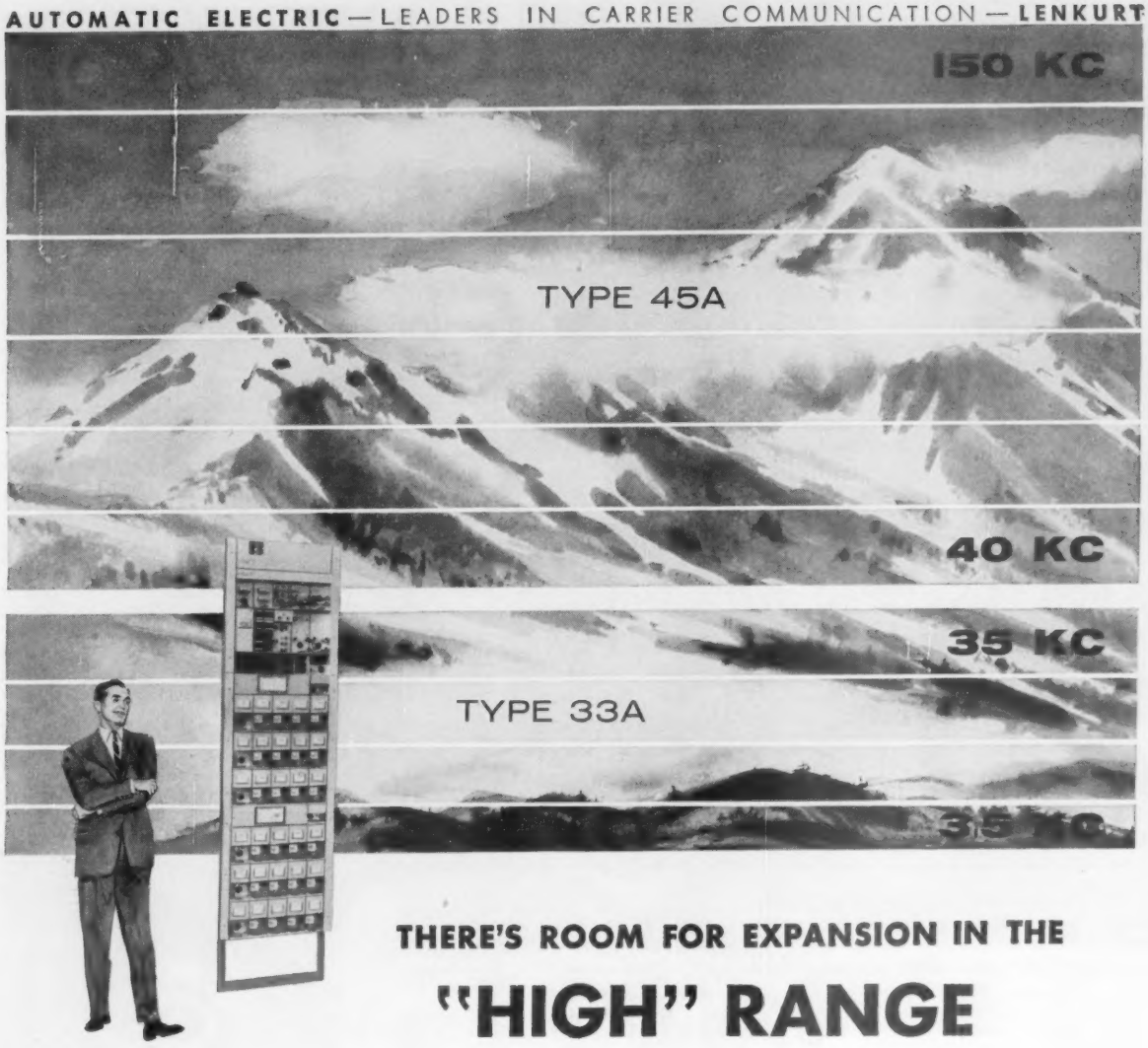
Enthusiasm over a 500% increase in Chicago & North Western piggyback traffic has prompted predictions of the service's continued rapid growth and expansion.

"We who sell piggyback service are enthusiastic over its possibilities and tremendous vistas of expansion," Iver S. Olsen, C&NW manager of trailers and merchandise, recently told the Calumet Chapter of the American Society of Mechanical Engineers in Chicago. Mr. Olsen oversees one of the largest networks of on-line and interchange piggyback operations in service.

For many years the railroads' sole answer to increasing truck competition was reduction of rates, Mr. Olsen said. "This method is totally ineffective," he declared. Although gradually shrinking rail revenues have been off-set, to some degree, by improved operating methods, piggyback service has answered the railroad need for additional freight revenue, Mr. Olsen believes.

"Twenty years ago," Mr. Olsen said, "railroads would have not been

AUTOMATIC ELECTRIC—LEADERS IN CARRIER COMMUNICATION—**LENKURT**



THERE'S ROOM FOR EXPANSION IN THE

"HIGH" RANGE

A Lenkurt 45A Carrier System is your next logical step if you need to expand beyond the capacity of your present low-frequency carrier. Using Type 45A, you can add up to 12 channels above existing low-frequency systems. It's easy, quick, and inexpensive—and frequently requires no additional carrier transpositions.

Lenkurt's "carrier interconnection" concept—foundation of the 45 "universal" class of carrier systems—provides interconnection *at carrier frequencies*. Open-wire, cable, and radio systems can all be joined in one network, without expensive back-to-back equipment arrangements normally necessary.

Lenkurt Type 45A carrier also offers these advantages:

- *proves in over distances less than 15 miles in competition with new open-wire construction*
- *meets performance standards for long-haul systems*
- *coordinates with other long-haul systems*
- *convenient miniaturized components — plug-in sub-assemblies — simplified maintenance*

If you need high-frequency carrier, investigate Lenkurt Type 45A open-wire carrier. Write today for complete information. *Address:* Automatic Electric Sales Corporation, 1033 West Van Buren St. (HAymarket 1-4300), Chicago 7, Illinois. *In Canada:* Automatic Electric Sales (Canada) Ltd., Toronto. *Offices in principal cities.*

Manufactured for

AUTOMATIC ELECTRIC

Originators of the dial telephone • Pioneers in automatic control

GENERAL TELEPHONE SYSTEM

permitted to operate piggyback service in its present form. Over the years, public opinion has changed the attitude of public bodies such as the Interstate Commerce Commission. Today there is little desire to consider the railroads as bloated money makers, and a genuine concern is being manifested to take another look at the entire transportation picture and to restore some semblance of balance, justice, and sanity."

Mr. Olsen does not believe a completely successful piggyback flat car or trailer body has yet been evolved. "We are still faced with expensive terminals, and we are still tied to major cities with our service because of that fact. I am hopeful that the future will see a car developed, probably 40 or 80 ft long, with roller bearings, that can be unloaded with our expensive machinery at any country town that has a team track. Perhaps a dropside, low-slung gondola is the answer."

"I feel piggyback will continue to live and grow," Mr. Olsen said, "because: (1) it rounds out a railroad's transportation service; (2) it provides railroads with an instrument of competition with which to compete for the best of the shipping public's traffic; (3) it provides a faster service through elimination of terminal delays; (4) it provides a new method of handling LCL; (5) it provides a satisfactory revenue return, and (6) the shipping public likes the service."

Charges Covered 3 1/2 Times in 1955

Class I line-haul railroads had 1955 earnings which covered their fixed charges more than 3½ times. The ratio of income available for fixed charges to fixed charges was 3.58, compared with 1954's 2.88.

This was shown in the latest issue of "Transport Economics," monthly publication of the Bureau of Transport Economics and Statistics of the Interstate Commerce Commission. Figures involved in the calculations were the 1955 income available for fixed charges of $1,342 million, up 22.1% from 1954's $1,099 million, and 1955 fixed charges of $374.4 million, down 2% from 1954's $382 million.

The bureau also presented the accompanying table, showing like data for 42 large roads (those with 1955 operating revenues above $50 million). These roads reported 87.3% of the income available for fixed charges in 1955 and 85.4% of the total fixed charges. Six of them had lower coverage ratios in 1955 than in 1954.

COVERAGE OF FIXED CHARGES

(Large railroads—Years 1955 and 1954)

Railroad	Income available for fixed charges 1955 Thousands	Income available for fixed charges 1954 Thousands	Total fixed charges 1955 Thousands	Total fixed charges 1954 Thousands	Ratio of amount available to fixed charges 1955	Ratio of amount available to fixed charges 1954
Norfolk & Western	$40,063	$27,732	$1,432	$1,441	27.98	19.24
D. M. & Iron Range	10,274	5,075	448	545	22.93	9.31
Union Pacific	84,196	74,652	4,969	5,029	16.94	14.84
A.T. & S.F. & Aff. Cos.	85,442	74,430	5,984	6,356	14.28	11.71
St. L. S. W. Lines	11,516	17,489	815	828	14.13	21.12
E. J. & E.	7,504	2,565	550	588	13.64	4.36
Wabash	19,112	13,244	2,513	2,584	7.61	5.13
Denver & Rio Grande	15,447	14,273	2,104	2,147	7.34	6.65
Seaboard Air Line	25,321	23,989	3,783	3,857	6.69	6.22
Western Pac.	6,794	5,632	1,069	1,318	6.36	4.27
Chesapeake & Ohio	70,376	52,998	12,394	13,088	5.68	4.05
Chic., R. I. & Pac.	21,894	21,814	3,969	3,145	5.52	6.94
Del. & Hudson	10,978	7,699	2,123	2,156	5.17	3.57
Great Northern	40,186	33,537	8,122	8,095	4.95	4.14
Illinois Central	34,044	30,028	7,502	8,014	4.54	3.75
N.Y., C. & St. L.	23,283	19,990	5,148	5,529	4.52	3.62
C. M., St. P. & P.	20,986	18,397	4,696	4,593	4.47	4.01
Gulf, Mobile & Ohio	10,438	9,497	2,379	2,207	4.39	4.30
Chic., B. & Q.	28,792	29,655	6,634	6,643	4.34	4.46
Texas & Pacific	12,157	10,261	2,877	3,023	4.23	3.39
Southern	51,351	39,728	13,358	13,465	3.84	2.95
Southern Pacific	72,232	64,658	19,135	18,838	3.77	3.43
Louisville & Nashville	33,667	28,174	9,029	9,247	3.73	3.05
St. L.-S. F.	15,598	12,194	4,397	4,250	3.55	2.87
Lehigh Valley	9,212	6,643	2,730	3,100	3.37	2.14
Erie	16,223	13,494	4,998	5,111	3.25	2.64
Atlantic Coast Line	20,875	18,649	7,024	6,901	2.97	2.70
Reading	16,429	14,882	5,532	5,692	2.97	2.61
Texas & New Orleans	8,040	6,859	2,741	2,742	2.93	2.50
Northern Pacific	29,254	24,809	10,111	10,451	2.89	2.37
Baltimore & Ohio	45,830	39,144	16,527	17,859	2.77	2.19
Chicago & N. Wn.	9,267	2,219	3,842	3,772	2.41	.59
Boston & Maine	7,610	3,605	3,206	3,033	2.37	1.19
M-K-T Lines	6,816	7,685	3,027	2,987	2.25	2.57
New York Central	100,668	56,513	48,384	47,325	2.08	1.19
N.Y., N.H. & H.	13,008	17,201	6,387	6,081	2.04	2.83
Pennsylvania	88,372	67,991	47,189	49,438	1.87	1.38
Missouri Pacific*	31,729	29,941	18,111	18,017	1.75	1.66
Long Island	1,689	d1,620	1,053	1,923	1.60	—
Central RR Co. of N.J.	5,243	4,583	4,432	4,514	1.18	1.02
Grand Trunk Wn.	5,259	1,190	4,466	4,509	1.18	.26
Del., Lacka. & Western	4,090	9,024	4,613	4,752	.89	1.90

d Deficit.
* In trusteeship.

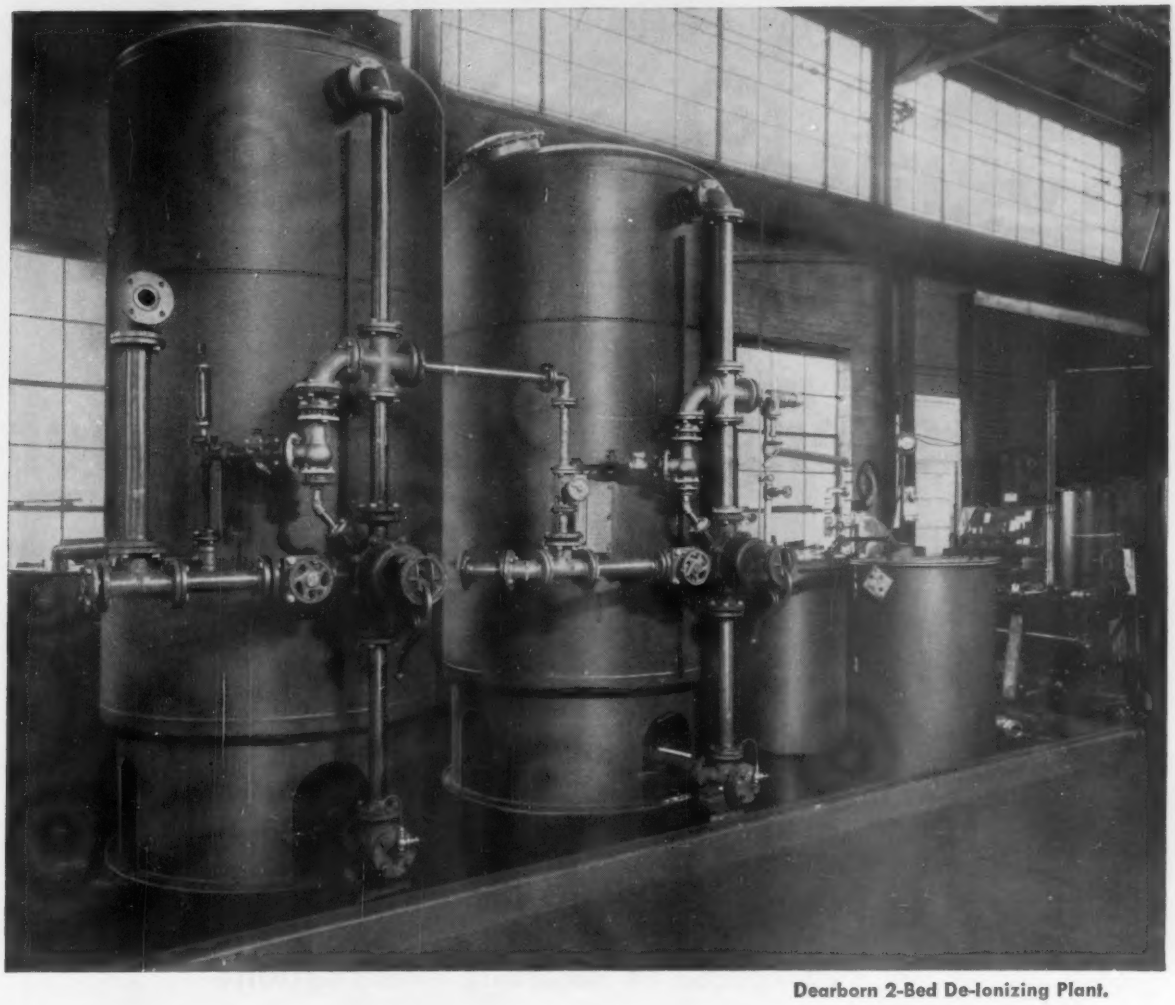
Organizations

Camden (N. J.) Traffic Club.—W. H. Schmidt, Jr., executive editor, Railway Age, and editorial director, Railway Freight Traffic, will speak on the subject "Ye Gods—And Little Fissures," at the annual "Rail Night," April 16, in Camden's Walt Whitman Hotel.

Traffic Club of Greater Los Angeles.—The fourth annual Perfect Shipping Exposition has been set for April 11 at Southern Pacific's auto dock, 8th and Alameda streets. It will *(Continued on page 64)*

Cancer Victim Recovers

Still smiling, Boston & Maine engineer Herbert A. Bachelder (above), calls it quits 21 years after recovery from cancer operation. He retired after 46 years on the B&M, lauding American Cancer Society's efforts to stem disease through early detection; 1956 Cancer Crusade is now in progress.



Dearborn 2-Bed De-Ionizing Plant.

DEARBORN DE-IONIZING UNITS SUPPLY MINERAL-FREE WATER

This Dearborn De-Ionizing Plant produces 75,000 gallons of demineralized water daily. It reduces the mineral content in the water to the equivalent of that produced by distillation—at less cost. The unit is equipped with Saran-lined steel pipe, as well as rubber-lined tanks and valves.

Whether you require a manual, semi-automatic or fully automatic system, Dearborn gives you the properly designed unit to do the job.

When specifications call for mineral-free water, see Dearborn for a quotation.

The complete Dearborn line includes De-Ionizing Units, Zeolite Softeners, and Treatment Feeding Equipment to meet all requirements.

Dearborn®

SPECIALISTS IN WATER CONDITIONING AND CORROSION CONTROL SINCE 1887

USE THE COUPON FOR ADDITIONAL INFORMATION

Dearborn Chemical Company, Dept. RA
Merchandise Mart Plaza, Chicago 54, Ill.

Please send me information on Dearborn's

- ☐ De-Ionizing Units
- ☐ Zeolite Softeners
- ☐ Treatment Feeding Equipment

Name..... *Title*.....
Company.....
Address.....
City..... *Zone*..... *State*.....

With New Developments Happening Every Day...

Progress is the Theme

of the 18th Annual

Passenger Traffic Number

May 21, 1956 issue

- **Progress in new trains**
- **Progress in passenger department research**
- **Progress in building traffic**
- **Progress in handling reservations**
- **Progress in advertising**

You will want to know what is happening and what is ahead in the passenger field—and the 18th Annual Passenger Traffic Number of Railway Age will give you a fast-moving picture of developments.

Here's another Railway Age service that demonstrates why Railway Age is a magazine railway men elect to read, and why it is not only the Workbook of the Railways, but the Workbook of Advertisers too.

Here, manufacturers will have the opportunity to feature their products in an issue that, except for the week's news and regular features, is concentrated on passenger service and passenger equipment.

RAILWAY AGE | Workbook of the Railways

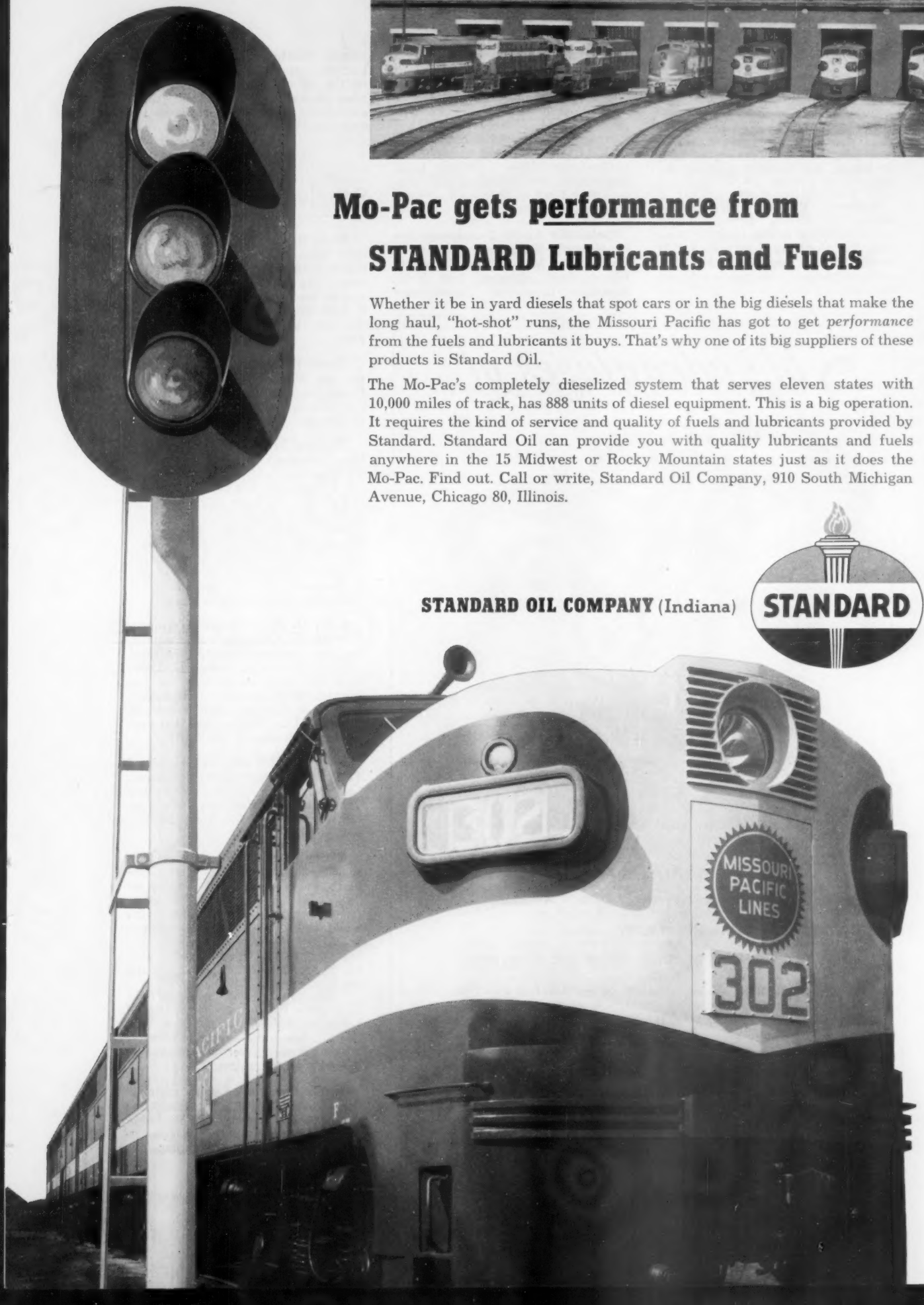
Mo-Pac gets performance from STANDARD Lubricants and Fuels

Whether it be in yard diesels that spot cars or in the big diesels that make the long haul, "hot-shot" runs, the Missouri Pacific has got to get *performance* from the fuels and lubricants it buys. That's why one of its big suppliers of these products is Standard Oil.

The Mo-Pac's completely dieselized system that serves eleven states with 10,000 miles of track, has 888 units of diesel equipment. This is a big operation. It requires the kind of service and quality of fuels and lubricants provided by Standard. Standard Oil can provide you with quality lubricants and fuels anywhere in the 15 Midwest or Rocky Mountain states just as it does the Mo-Pac. Find out. Call or write, Standard Oil Company, 910 South Michigan Avenue, Chicago 80, Illinois.

STANDARD OIL COMPANY (Indiana)

STANDARD



Organizations

(Continued from page 60)

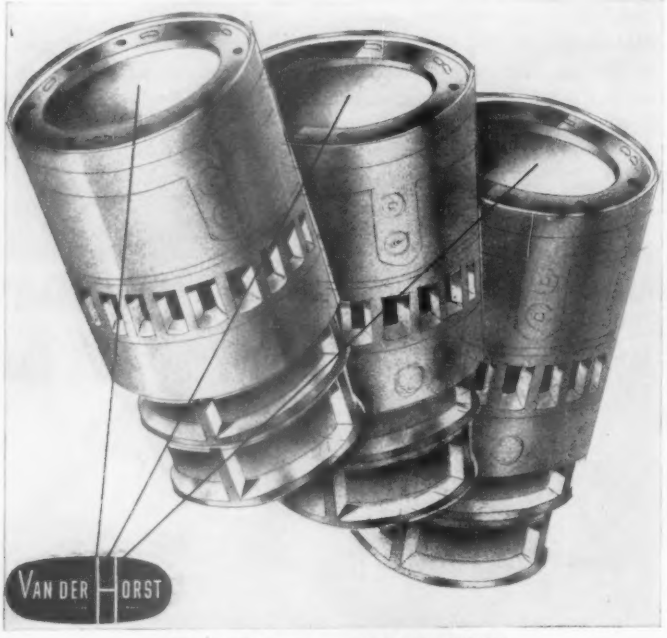
feature the latest developments in claim prevention programs, trends in packaging, rail truck and piggyback equipment, and material handling devices.

Railway Progress Institute.—Richard K. Helwig, formerly editor and advertising manager of the Rantoul, Ill., Press, has joined the RPI as special representative, with assignments in the press and public information field.

Lexington Group.—Two papers on early railroads west of Pittsburgh will feature a meeting of this group with the Mississippi Valley Historical Association, in the Western Pennsylvania Historical Society Building, Pittsburgh, on the afternoon of April 19. Chairman of the meeting will be Professor Sidney L. Miller, head, Department of Transportation, University of Pittsburgh's School of Business Administration.

Delta Nu Alpha Transportation Fraternity.—The annual spring meeting will be held in the Shamrock-Hilton Hotel, Houston, May 19-20. Interstate Commerce Commissioner Everett Hutchison, will speak at a luncheon on the 19th. The program on the following day will include a panel discussion of "Traffic and Transportation Education, Its Value to Industry and Commerce."

5 *big advantages of*



PORUS - KROME

Good for the Life of your Engines

- INCREASES CYLINDER LIFE 3 TO 5 TIMES.
- INCREASES PISTON RING LIFE UP TO 50%.
- ELIMINATES STOCKING OF OVERSIZED PISTONS AND PISTON RINGS.
- DEFINITELY CONTRIBUTES TO REDUCED DOWNTIME FOR ENGINES.
- DEFINITELY CONTRIBUTES TO A REDUCTION IN LUBE OIL CONSUMPTION.

—Write Dept. G. VAN DER HORST CORP., OLEAN, N. Y.—

OLEAN, NEW YORK
HILVERSUM, HOLLAND

VAN DER HORST

TERRELL, TEXAS
LOS ANGELES, CALIFORNIA*

*SparTan Engineering

Supply Trade

Jack Bradt has been appointed sales manager of the truck division, **Howe Scale Company.** Mr. Bradt had been doing market research and development work for **Safety Car Heating & Lighting Company,** which, earlier this year, acquired Howe Scale Company.

Harry Bishop, Detroit area manager for **MacLean-Fogg Lock Nut Company,** has been appointed general sales manager, industrial division, at Chicago.

National Malleable & Steel Castings Company has announced that the agreement with its Brazilian licensee, **Fabrica de Aco Paulista, S. A.,** Sao Paolo, has been enlarged to include more products. National has also invested directly in the company and will provide increased technical assistance. Earlier in the year it announced a similar agreement with its licensee in Mexico, a foundry specializing in production of railway castings.

John D. Fess, Northwest manager of **Okonite Company,** at Portland, Ore., has been appointed district manager at Pittsburgh. **James B. Caldwell,** previously assigned to the Los Angeles office, has been made branch manager at Portland, while **Edwin R. Conklin** of the Portland staff, has been made branch manager at Seattle.

SKF Industries has appointed **TEK Bearing Company,** Bridgeport, Conn., as distributor of SKF replacement products throughout New England and parts of New York and New Jersey.

True Temper Corporation has named **Anderson Equipment Company,** Omaha, Neb., as sales agent for its "Bulldog" rail anchors and safetv rail forks, serving railroads with headquarters in Omaha and Denver. **W. A. Blackford,** San Leandro, Cal., has been appointed sales agent serving railroads with headquarters on the Pacific coast.

Andrew B. Pulliam, formerly chief industrial engineer for the New York Central, has been appointed director of manufacturing services for **Borg-Warner Corporation.**

J. C. Cannon, district engineer, **Air Brake Division, Westinghouse Air Brake Company,** at St. Louis, has been appointed manager, commercial engineering, at Wilmerding, Pa.

He has been succeeded at St. Louis by **John W. Morris,** formerly assistant district engineer at New York. **J. W. Tuttle,** assistant manager, price and contract division, at Wilmerding, has been appointed manager of that division, succeeding **R. G. Dunn,** retired.

Whiting Corporation (Canada) Limited, has purchased **Volta Manufacturing Company,** Welland, Ont., and will operate it as a subsidiary. Volta will continue to manufacture electric furnaces, smelters and other equipment and in addition will manufacture the complete Whiting line.

Financial

Bangor & Aroostook.—*Quarterly Dividend.*—The BAR has declared a dividend of 60 cents a share on the common stock, payable June 30 to stockholders of record June 7. A statement accompanying the dividend announcement said "it is the present hope and expectation of the directors that payment of 60 cents can be continued quarterly for a total annual basis of $2.40. It is also the intention of the directors, should earnings permit, to give consideration at the year's end to the declaration of an extra dividend."

Railway Officers

BANGOR & AROOSTOOK.—**George M. Hill** has been appointed assistant vice-president — sales at

George M. Hill

Bangor, Me. Mr. Hill was formerly district traffic agent of the **New Haven** at Manchester, N. H.

DETROIT TERMINAL.—**Francis A. Gaffney,** vice-president, has exchanged positions with **Ernest C. Johnson,** president.

DULUTH, SOUTH SHORE & ATLANTIC.—**Howard J. Furness** has been appointed general agent, Detroit.

JERSEY CENTRAL.—**C. F. Stephansen** has been appointed general agent at Chicago.

LEHIGH & HUDSON RIVER.—**Harold W. Quinlan,** general auditor and purchasing agent at Warwick, N. Y., has been elected vice-president and general auditor. **Clifton G. Brown,** assistant secretary and assistant treasurer, has been elected secretary and treasurer. **George W. Goodman,** assistant purchasing agent, has been promoted to purchasing agent.

LONG ISLAND.—**Christ Meyers,** engineer in charge of communications and signals of the **Pennsylvania** at Pittsburgh, has been appointed assistant chief engineer—signals and electric traction of the Long Island at Jamaica, N. Y., succeeding the late **S. B. Higginbottom** (Railway Age, Feb. 13, p. 50).

MISSOURI-KANSAS-TEXAS.—**D. L. Wolford** will head a newly opened traffic agency at 538 Ellicott Square building, 295 Main Street, Buffalo, N. Y. Mr. Wolford was formerly

THE BALTIMORE AND OHIO RAILROAD CO.

129th Annual Report—Year 1955

	Year 1955	Comparison With 1954 (+) Increase (—) Decrease
Income:		
From transportation of freight, passengers, mail, express, etc.	$432,061,417	+$53,972,730
From other sources—interest, dividends, rents, etc.	8,186,914	— 2,322,488
Total Income	$440,248,331	+$51,650,242
Expenditures:		
Payrolls, supplies, services, taxes	$377,824,149	+$43,634,593
Interest, rents and services	38,505,400	— 1,374,344
Total Expenditures	$416,329,549	+$42,260,249
Net Income:		
For improvements, sinking funds and other purposes	$ 23,918,782	+$ 9,389,993

The improved earnings in 1955 made possible the payment of the regular $4.00 per share dividend on Preferred Stock, and an increase in the dividend on Common Stock to $2.00 per share.

During the year the Company successfully completed the refinancing of roundly $350 million of its debt. As a result there was a reduction in net annual interest charges on all debt outstanding of approximately $2,700,000. It was the largest refinancing operation ever undertaken by an American railroad.

The company now proposes, subject to Interstate Commerce Commission approval, to exchange outstanding Convertible 4½% Income Bonds, on which interest is contingent, payable annually, for new Convertible 4½% Debentures, due January 1, 2010, bearing fixed interest from January 1, 1956, payable semi-annually on January 1 and July 1. Holders may obtain details by addressing The Baltimore and Ohio Railroad Company, 2 Wall Street, New York 5, N.Y.

To handle the increasing volume of business, the Company in 1955 ordered 3,500 new freight cars and stepped up sharply its car repair program.

D. B. Simpson, *President*

commercial agent at Pittsburgh, Pa.

Effective April 1, **A. J. Davoren, Jr.,** commercial agent at Kansas City, Mo., **M. F. Engman,** city freight agent at Tulsa, Okla., and **A. H. Younger,** traveling freight and passenger agent at Cincinnati, have been appointed general agents in charge of new traffic agencies at, respectively, Omaha, Indianapolis, and Louisville.

MISSOURI-KANSAS-TEXAS OF TEXAS.—O. H. Griffin, assistant to president, has been appointed to the newly created position of assistant vice-president—freight sales and service at Dallas, effective April 1.

NASHVILLE, CHATTANOOGA & ST. LOUIS.—L. D. Cary has been appointed acting general agent—passenger at Chicago, succeeding the late **Walter S. Snodel.**

SEATRAIN LINES, INC.—William J. Mathey, freight traffic manager at New York, has retired. **Harry J. Johnson** has been appointed vice-president—traffic, effective April 1.

TEXAS & PACIFIC.—L. B. Griffin, trainmaster at Mineola, Tex., has been appointed assistant superintendent at Big Spring, Tex., succeeding **J. A. Wright,** assigned to other duties;

MARTIN K. ELLIOTT, who resigned March 1 as a member of the Interstate Commerce Commission to return to the practice of law (Railway Age, Mar. 5, p. 11).

R. G. Brill, trainmaster at Marshall, Tex., succeeds Mr. Griffin, and in turn has been replaced by **C. Percy,** transferred from Shreveport, La. Mr. Percy's successor is **K. E. Banks,** transportation inspector at Big Spring.

OBITUARY

J. W. Kirk, 68, general agent and superintendent of the **Norfolk & Western's** Norfolk, Va., terminal, died March 23.

LEFT: Weighing a car in motion at Seven Islands. BELOW: Typical control and printing units at Seaboard's Hamlet yard.

Weighs 100 cars in 20 minutes "on the fly"

All iron ore from the new Labrador fields—over 6 million tons in 1955—is weighed in motion by these Cox & Stevens electronic track scales. Installed by Iron Ore Company of Canada at Seven Islands, the scales automatically print-weigh a train of 100 cars in just 20 minutes!

After extensive experience, the Company reports: "Fast motion weighing . . . approximately twice as fast . . . accuracy equal to the best . . . maintained over longer periods . . . maintenance costs are low."

Many other modern railroad classification yards are now speeding all types of freight to destination . . . thus making available more cars . . . with accurate electronic motion weighing. The "Electro-Load" scales can be linked with machine tabulating, teletype or other automatic systems, saving time and paper work and preventing human error.

See what Cox & Stevens electronic track scales can do to reduce weighing costs, speed up delivery, and increase customer service.

COX & STEVENS ELECTRONIC SCALES DIV.

Revere CORPORATION OF AMERICA 14

WALLINGFORD, CONNECTICUT A Subsidiary of Neptune Meter Company

6100 Railroaders (and prominent suppliers) may be found in the industry's complete and only book of biographical facts:

WHO'S WHO IN RAILROADING

13th Edition

Included are practically all U.S. and Canadian railroad men with responsible positions, also railroad labor leaders, members of regulatory bodies, transportation economists, railway finance specialists, educators concerned with railroad problems, ICC practitioners, consultants, etc. Every railroad executive or supplier needs a copy. Order yours by sending check or money order for $14.00 to Railway Age Books, 30 Church Street, New York 7.

RAILWAY AGE BOOKS—
30 Church St., N.Y.C. 7

Send copy of WHO'S WHO IN RAILROADING with 10-day return privilege. $14.00 remittance enclosed.

Name .....

Address .....

City, State .....

Current Publications

PERIODICAL ARTICLES

WILL "FISHYBACK" PEP UP COASTAL SHIPPING? Business Week, Mar. 24, 1956, pp. 180-186. McGraw-Hill Publishing Company, 330 W. 42nd st., New York 36. Limited supply of tearsheets available free.

Two major lines, McLean Industries' Pan-Atlantic Steamship Corporation and American Hawaiian Steamship Company, aim to find the answer by building and operating special roll-on, roll-off ships.

BY PIGGYBACK ACROSS AMERICA, by Evan McLeod Wylie. The American Magazine, February 1956, pp. 24, et seq. Crowell-Collier Publishing Company, 640 Fifth ave., New York 19. Single copies, 35¢.

Mr. Wylie followed a bale of cotton from the fields of Tennessee, through the mills of Alabama and the dress factories of New York, to its final delivery to three girls on a ranch in Wyoming. Most of the trips were made by over-the-road truckers, but the trip from New York to Chicago was made by piggyback.

A SHIPPER LOOKS AT NATIONAL TRANSPORTATION POLICY, by E. G. Plowman. Harvard Business Review, March-April 1956, pp. 128-136. Graduate School of Business Administration, Harvard University, Soldiers Field, Boston 63, Mass. Single copies, $2.

What is the best way to avoid the chaos of freight rate wars, at one extreme, or the nationalization of railroads, at the other extreme? Mr. Plowman, vice-president—traffic United States Steel Corporation, concludes that "what is needed is not less, but different, regulation."

PAMPHLETS

COLLEGE COURSES IN RAILROAD SUBJECTS. 32 pages. Association of American Railroads, Transportation Bldg., Washington 6, D. C. Free.

A list of colleges and universities offering courses in engineering, transportation, and traffic management with special reference to the railroad industry.

FACTS AND FIGURES ABOUT BRITISH RAILWAYS, 1955 EDITION. 40 pages. British Transport Commission, 222 Marylebone Road London, N.W.1, England. Free.

FROM THE MANUFACTURERS

TO MEET THE NEED. 24 pages, illustrations. Standard Railway Equipment Manufacturing Company, Dept. RA, 310 S. Michigan Ave., Chicago 4. Free.

In this attractive brochure, Standard endeavors to show how it has been possible to meet the needs of its customers for 67 years through its fabrication and production facilities, its people and services, and its research and product development department. The flexibility of its facilities is such that they can be easily adapted to solve a wide range of metal fabricating problems.

APRIL 6, 1872
NEW INVENTION MAKES EVERY MAN A TELEGRAPHER
NEW YORK, April 6 — A simple telegraph instrument which automatically prints the dispatch being sent or received has been designed by Messrs. Foote and Randall of New York.
The advantages of a telegraph transmitting apparatus which can be operated by any person of average intelligence, after a few minutes instruction, is sufficiently obvious without further comment. Every man can thus be his own telegraph operator, and railroad conductors, locomotive-runners, clerks or office boys can quickly become expert in the use of the instrument.
In the transmitting apparatus as in the receiving apparatus, a train of wheels is employed

Even back in the days when the printing telegraph was news, Graybar was active in railroad communications. From 1869 to date, Graybar has always kept its stocks and services in tune with the newest developments in railroad communications. Wires and cables... to carrier telephone and telegraph equipment... sound systems of all types, each item in the long list of modern railroad requirements can be supplied through 120 conveniently located Graybar offices and warehouses.

To save paper work, to save time, and to get the experienced assistance of railroad electrical equipment specialists, make your next order read "Via Graybar". Graybar Electric Company, Executive Offices: Graybar Building, 420 Lexington Avenue, New York 17, N.Y.

541-209

100,000 electrical items are distributed throughout the nation...

via GraybaR

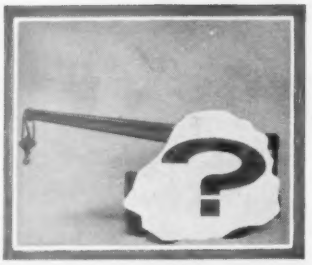
OFFICES AND WAREHOUSES IN OVER 120 PRINCIPAL CITIES

SOON

...FROM

SERVICE

SUPPLY



...A NEW 5 TON CRANE with Greater Dollar $aving Features!

- $TRENGTH
- $TABILITY
- $IMPLICITY
- $AFETY

PLUS

COMPLETE HYDRAULIC OPERATION • LONGER & HIGHER REACH • POWER STEERING • SOLID OR PNEUMATIC TIRES

SPACE 1036

MATERIALS HANDLING INSTITUTE EXPOSITION

June 5th-8th • Cleveland, Ohio

***ATTENTION** MATERIALS HANDLING SALES SPECIALISTS:*

Exclusive territories are available.

Write today, or visit our Cleveland exhibit for details.

SERVICE SUPPLY CORPORATION

MANUFACTURING DIVISION

20TH STREET AND ERIE AVENUE • PHILADELPHIA 32, PA.

Just Published—

Revised edition of a standard technical work on the varying aspects of train acceleration and retardation

By

Lewis K. Sillcox

Honorary Vice Chairman
New York Air Brake Co.

Based on the author's lectures at the Massachusetts Institute of Technology and first published in 1941, the scope of this book is far wider than the title, *Mastering Momentum*, suggests. Its six chapters discuss: Mechanics of train operation and braking; Car wheels and axles; Locomotive and car truck design; Rail reaction and riding qualities; Draft gear, and Conclusion. This thorough revision was brought completely up to date in the light of modern practices. 248 pages; 6¼" x 9¼"; 87 illustrations, charts and tables; cloth; $5.75, postpaid.

RAILWAY AGE BOOKS

30 Church St., New York 7, N.Y.

NOW AVAILABLE FOR IMMEDIATE DELIVERY—

essays on

"Traditional Differentials" in Railway Rate-Making

. . . Should they and can they be maintained under rivalry from contract and private transportation?

A limited supply of this new 44-page publication containing the two prize winning essays and 8 "honorable mention" essays in the recent "Traditional Differentials" essay contest sponsored jointly by Warren W. Brown, President, Monon Railway, and by Railway Age is now available for immediate delivery. A provocative foreword suggests that "many thousands of brain-hours of competent men" need to be devoted to the study and solution of problems relating to the development of a sound contemporary railroad pricing policy.

Among the authors:

Alan M. White
Member, Railroads' Tariff Research Group, Washington, D. C.

William G. Scott
Transport Economist, Railway Association of Canada, Montreal

Dr. Thomas C. Campbell
Associate Professor of Economics, West Virginia University

William K. Tate
Vice President, Freight Traffic, New Haven Railroad

Charles S. Baxter
Chairman, Railroads' Tariff Research Group, Washington, D. C.

—and five additional able contributors

PRICE: $1.00 — with substantial discounts for quantity orders.

SIMMONS-BOARDMAN PUBLISHING CORPORATION

30 Church Street New York 7

FOR SALE
R.R.
ROLLING STOCK

On Hand — Immediate Delivery

FLATS — GONDOLAS — HOPPERS
TANKS and BOX CARS
LOCOMOTIVES and LOCOMOTIVE CRANES

•

CARS PURCHASED • REBUILT
and LEASED to RAILROADS
ALL STEEL CABOOSE CARS — 3 TYPES
ROAD — BAY WINDOW — YARD

Built to the most exacting specifications for maximum performance in **fast operating service.**

•

RAIL & INDUSTRIAL EQUIPMENT CO., INC.

30 Church Street
NEW YORK 7, N.Y.

RR Yard & Shops
LANDISVILLE, PA.

FOR SALE
RECONDITIONED
RAILROAD CARS FOR INTERPLANT USE
GONDOLAS • BOX • FLAT

ERMAN-HOWELL DIVISION
LURIA STEEL & TRADING CORP.
332 South Michigan Avenue
Chicago 4, Illinois
WEbster 9-0500

OPENING

Good opportunity and permanent position for young, ambitious sales representative with knowledge of railway cars and car material with a well-established 30 year old firm which has Chicago headquarters. Apply by submitting resume of experience, personal background, and salary requirements to Box 34, RAILWAY AGE, 79 West Monroe Street, Chicago 3, Illinois.

Robert W. Hunt Company
ENGINEERS
Inspection—Tests—Consultation
All Railway Equipment
Structures and Materials
General Office:
175 W. Jackson Boulevard
CHICAGO
New York-Pittsburgh-St. Louis

FOR SALE
RAILWAY EQUIPMENT
Used—As Is—Reconditioned

RAILWAY CARS
All Types

LOCOMOTIVES
Diesel, Steam, Gasoline, Diesel-Electric

SPECIAL OFFERING
25—70-TON CAPACITY, ALL-STEEL COVERED HOPPER CARS
Repaired—Immediate Delivery!

SERVICE-TESTED® FREIGHT CAR REPAIR PARTS
For All Types of Cars

RAILWAY TANK CARS and STORAGE TANKS
6,000 - 8,000 and 10,000-gallon Cleaned and Tested

IRON & STEEL PRODUCTS, INC.
"ANYTHING containing IRON or STEEL"

General Office
13486 So. Brainard Ave.
Chicago 33, Illinois
Phone: Mitchell 6-1212

New York Office
50-c Church Street
New York 7, New York
Phone: BEekman 3-8230

WANTED

Man with some experience in rates and divisions for short line railroad in Pennsylvania. Age no handicap. In reply give full details as to experience, and salary expected. Address Box 781, RAILWAY AGE, 30 Church Street New York 7, N.Y.

KEEP
BUYING
BONDS

Log Cabins
Homes, Clubs, Lodges
Shops Restaurants, Motels, etc.

85% pre-cut and/or prefab, your plans—or ours—light, summer, vertical—or heavy, year 'round, log-on-log and vertical (patented) easily, quickly erected—low cost—extremely low maintenance. NO studs, rafters, plaster, paint, wallpaper, insulation or bearing partitions required. Log walls of genuine Michigan White Cedar, lightest and most unique wood in N. America . . . "rough, rugged and rustic"—or "streamlined," with beveled, paneled plank partitions. Definitely different, durable and distinctive!

Individual and Dealer inquiries invited

"The Log Cabin Man"
120 H Delaware Ave.
Buffalo 2, N.Y.

LOCOMOTIVE BARGAIN

35-ton Plymouth Standard Gauge Four Wheel Locomotive, new 1939, powered by Cat. D17000 Diesel Engine with air brakes. Can be demonstrated on short notice and priced to sell.

THE ACME EQUIPMENT COMPANY
14057 Schaefer Highway
Detroit 27, Mich. VErmont 7-0366

FOR SALE

90 Pound Tie Plates
350 tons strictly No. 1 relay tie plates

Also new and relay rail, new track spikes, bolts and track turnouts for prompt shipment. Write or wire for prices.

Sonken-Galamba Corporation
2nd and Riverview (X-252)
Kansas City 18, Kansas
ATwater 1-9305

AVAILABLE NOW

Official, Class I railroad, sixteen years mechanical experience, ten years with same company, desires change to warmer climate. Address Box 262, RAILWAY AGE, 79 West Monroe Street, Chicago 3, Illinois.

MANAGEMENT POSITION WANTED

—With railroad or supplier. Over 20 years experience in locomotive design, application to train service, some operating experience. Address Box 778, RAILWAY AGE, 30 Church St., New York 7, N.Y.

APPRENTICE TRAINING

Since 1909, The Railway Educational Bureau has trained men for a number of our major railroads. We furnish the texts, questions and grading service for all technical instruction covering 3- or 4-year programs. These are raising the skill and efficiency of 3000 apprentices today. The Bureau is staffed and its texts authored by railroad men. Information is available describing methods used and fields covered.

Also special courses are available for individual employees seeking advancement.

THE RAILWAY EDUCATIONAL BUREAU, 1809 Capitol Avenue, Omaha 2, Nebraska.

FOR SALE

2 Whitcomb Diesel Electric Locomotives, 80-ton, with two Buda Engines, 325 h.p. each. Built new in 1944.

SUMMER & CO., INC.
P. O. BOX 2053
BUFFALO 5, NEW YORK

ADVERTISERS IN THIS ISSUE

A

Acme Equipment Company, The 69
American Steel Foundries 14, 15
Agency—Erwin, Wasey & Company, Ltd.
American Telephone & Telegraph Company 26
Agency—N. W. Ayer & Son, Inc.
Archer Daniels Midland Company 32
Agency—Alfred Colle Co.
Automatic Electric Sales Co. 59
Agency—Proebsting, Taylor, Inc.

B

Baltimore & Ohio Railroad 65
Agency—The Richard A. Foley Advertising
Bethlehem Steel Company 1
Agency—Jones & Brakeley, Inc.
Buffalo Brake Beam Company..... Inside Front Cover

C

Classified Advertisements 69

D

Dearborn Chemical Company 61
Agency—The Buchen Company

E

Edgewater Steel Company 28
Agency—Downing Industrial Advertising
Electro-Motive Division, General Motors Corporation ..... Front Cover
Agency—The Kudner Agency, Inc.
Erman-Howell Division, Luria Steel & Trading Corp. 69
Esso Standard Oil Company 27
Agency—McCann-Erickson, Inc.

F

Fairbanks-Morse & Co. 24
Agency—The Buchen Company
Fairmont Railway Motors, Inc. 23
Agency—MacManus, John & Adams, Inc.

G

General Steel Castings 53
Agency—Oakleigh R. French & Associates
Gould National Batteries, Inc. 54
Agency—Hutchins Advertising Company, Inc.
Graybar Electric Co., Inc. 67
Agency—G. M. Basford Company

I

Industrial Brownhoist Corp. 29
Agency—Price, Tanner & Willox, Inc.
International Harvester Company 17-22
Agency—Aubrey, Finlay, Marley & Hodgson, Inc.
Iron & Steel Products, Inc. 69

L

Linde Air Products Company, Railroad Department, a division of Union Carbide & Carbon Corp. 30
Agency—J. M. Mathes, Inc.
Log Cabin Man, The 69

M

Magnus Metal Corporation 6
Agency—Marsteller, Rickard, Gebhardt & Reed, Inc.
Mortell Company, J. W. 37
Agency—Ross Roy, Inc.

O

Okonite Company, The 38
Agency—Doyle, Kitchen & McCormick, Inc.

P

Pullman Standard Car Mfg. Co. 33-36
Agency—Fuller & Smith & Ross, Inc.

R

Rail & Industrial Equipment Co., Inc. 69
Railway Educational Bureau 69
Revere Corporation of America 66
Agency—W. L. Towne Advertising

S

Seatrain Lines, Inc. 4
Agency—Tucker Wayne & Company
Service Supply Corp. 68
Agency—The Roland G. E. Ullman Organization
Sonken-Galamba Corporation 69
Standard Oil Company of Indiana 63
Agency—D'Arcy Advertising Company
Standard Railway Equipment Co. 25
Agency—Clinton E. Frank, Inc.
Summer & Co., Inc. 69

T

Timken Roller Bearing Company ..... Back Cover
Agency—Batten, Barton, Durstine & Osborn, Inc.

U

Union Switch & Signal Division of Westinghouse Air Brake Company 2
Agency—Batten, Barton, Durstine & Osborn, Inc.
Unit Truck Corporation ..... Inside Front Cover

V

Van Der Horst Corporation, The 64

W

Waugh Equipment Company ..... Inside Back Cover
Westinghouse Air Brake Company 31
Agency—Batten, Barton, Durstine & Osborn, Inc.

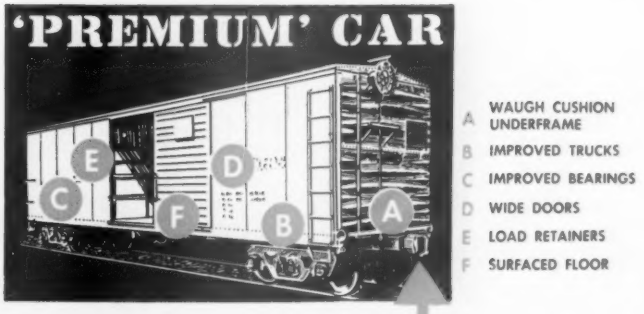
This index is an editorial feature, maintained for the convenience of readers. It is not a part of the advertiser's contract and Railway Age assumes no responsibility for its correctness.

TO SHOCKPROOF SHIPMENTS OF

Canned Goods

CHICAGO, BURLINGTON & QUINCY RAILROAD has ordered 100 cars equipped

with *Waugh*



Cushion Underframe

New York, Chicago, St. Louis. Canadian Waugh Equipment Company, Ltd., Montreal

Boston and Maine orders 800 new "Roller Freight" box cars for interchange service

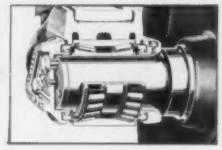
TO provide better service for its shippers, the Boston and Maine Railroad has ordered 800 new box cars equipped with Timken® tapered roller bearings instead of friction bearings.

"Roller Freight" cars will speed deliveries for Boston and Maine shippers by eliminating the hot box problem. And hot boxes are the major cause of freight train delays. Unlike cars with friction bearings, "Roller Freight" cars provide delay-free dependability that gets shipments where they're going on time.

But "Roller Freight" profits the railroads as well as their shippers. When they put roller bearings on all freight cars, they'll save on lubrication, labor, inspection and repairs. An estimated $190 million a year! A 22% annual return on the investment.

The taper makes Timken the only journal bearing that delivers all the advantages you expect to get from roller bearings. To insure its quality, we make our own steel. We're the only bearing maker that does.

Timken bearings not only end the hot box problem, they cut terminal bearing inspection time 90%. They need only one bearing inspection compared to nine for friction bearings. And Timken bearings can go three years without adding lubricant. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".



TIMKEN

TRADE-MARK REG. U. S. PAT. OFF.

TAPERED ROLLER BEARINGS

NOT JUST A BALL ○ NOT JUST A ROLLER ▭ THE TIMKEN TAPERED ROLLER ▭ BEARING TAKES RADIAL ▯ AND THRUST ▯→ LOADS OR ANY COMBINATION →▯←